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The Effect of Reiki Therapy on Maternal Anxiety Associated with Amniocentesis

by

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A thesis submitted to the Faculty of Graduate Studies and Research

in partial fulfillment of the requirements for the degree of Master of Nursing

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The undersigned certify that they have read, and recommended to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled "The Effect of Reiki Therapy on Maternal Anxiety Associated with Amniocentesis" submitted by Margareth Torregoza Mauro in partial fulfillment of the requirements for the degree of Master of Nursing.

Dedication

To my patient and ever loving husband Rod North

Thank-you for your support and encouragement

before, during, and at every possible end to completing this thesis.

To both my parents

Thank you for instilling in me the importance and value of education.

To my short man, Tyler

Continue to ask your questions…there is a Goo Goo Plex of things to learn.

Abstract

The purpose of this pilot study was to determine the acceptability and feasibility to conduct a randomized controlled clinical trial to evaluate the efficacy of Reiki therapy on the anxiety levels of pregnant women about to experience their first amniocentesis. Participants (n=30) were randomized to one of three groups (Reiki , Placebo, Control). The anxiety levels of each participant were assessed on seven occasions using the Subjective Units of Disturbance Scale (SUDS), twice using the Sheehan Patient Rated Anxiety Scale (SPRAS), and once using an interview format.

A total of 23 participants completed the study protocol. All participants reported significant differences in SUDS anxiety at different times throughout the amniocentesis. There was a differential treatment effect between the control group and both treatment groups immediately following the intervention. There was no difference in pre-treatment and post-treatment SPRAS scores. The feasibility and acceptability of conducting a larger study was supported.

Acknowledgements

This thesis would not have been possible without the knowledge and expertise of Beverley O'Brien, Terry Davis, and Nan Okun. Each contributed a crucial dimension in the successful development and execution of this thesis. I want to express my endless gratitude to each of you for sharing your expertise, providing me with guidance, and showing your continual support throughout this thesis.

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CHAPTER I: INTRODUCTION

The Effect of Reiki Therapy on Maternal Anxiety Associated with Amniocentesis

Maternal anxiety is evident in almost every pregnancy and high levels have been related to compromised perinatal outcomes (Lederman, 1986; Shaw & Herman, 1994) (Appendix A). The sources of anxiety may include concern for the safety and health of both self and infant; the upcoming role of motherhood; and the fear of unknown elements in labor (Areskog, Uddenberg, & Kjessler, 1981; Ballou, 1978; Lederman, 1984; Light & Fenster, 1974; Rubin, 1975; Shereshefsky & Yarrow, 1973; Standley, Soule, & Copans, 1979).

Anxiety is associated with both positive and negative effects in pregnancy. A moderate level of anxiety experienced by pregnant women indicates their ability to confront and deal with inevitable conflicts during this developmental period (Leifer, 1980); whereas, a high level of anxiety is correlated with adverse effects on the mother and neonate, such as preclampsia (Crandon, 1979b), pregnancy-induced hypertension (Asher, 1978), fetal distress (Crandon, 1979a), fetal asphyxia (Lederman, Lederman, Work, & McCann, 1979), abnormal fetal heart patterns (Godlin & Lowe, 1974), low Apgar scores (Crawford, 1968), and congenital abnormalities (Downs, 1977). In addition, a high level of anxiety is associated with the progress of labor and birth, as evidenced by preterm labor (Richardson, 1987), prolonged or precipitous labor (Crandon, 1979b), painful labor (Lowe, 1989), and forceps delivery (Albrecht & Rankin, 1989; Ascher, 1978; Bechelmayr, 1995; Shaw & Herman, 1994).

It is hypothesized that the biochemical response to anxiety in pregnant women initiates an increase in neuroendocrine activity affecting the uterus. These alterations

may result in an increased chance for perinatal morbidity due to decreased uterine blood flow, prolonged or dysfunctional labor patterns (Lederman, 1986), fetal hypoxia (Fox, 1989; Lagercrantz & Slotkin, 1986), preterm labor (Crandon, 1979b; Newton & Hunt, 1984; Newton, Webster, Blau, Maskrey, & Phillips, 1979), neonatal respiratory distress syndrome and neonatal necrotizing enterocolitis (Fox, 1989; Merenstein & Gardner, 1989). Whether the anxiety is chronic or situational, and resulting from either physical or emotional stressors, increased levels are shown to correlate with preterm birth (prospective and retrospective studies)(Albrecht & Rankin, 1989; Downs, 1977; Richardson, 1987). In addition to the common fears associated with pregnancy, there are various situations occurring during pregnancy that may heighten maternal anxiety levels. During antenatal care, being at risk for complications may lead to invasive diagnostic testing and treatment. Increased risk for genetic fetal abnormalities in pregnant women 35 years of age or older is one example.

It is common for women in North America to delay childbirth because of economic and sociologic changes. The age-specific fertility rate in Canada has increased between 1986 and 1997 from 72.52 to 84.44 in women 30 to 34 years of age; from 22.30 to 32.52 in women 35 to 39 years of age; and from 3.15 to 5.19 in women 40 to 44 years of age (Statistics Canada, 1997a). As a woman's age increases, the risk of bearing a child with a chromosomal abnormality also increases due to misdivision of the ovum (Berkowitz, Skovrn, Lapinski, & Berkowitz, 1990; Cnattingius, Forman, Berendes, & Isotalo, 1992; French, Kurczynski, Weaver, & Pituch, 1992; Johnson & Summers, 1994; Phillips & Elias, 1993; Wilcox, Karamanoukian, & Glick, 1993; Wright, 1994). For a child of a woman 30 years of age at the time of delivery, the total

risk for chromosomal abnormalities is 1/385; for a woman 35 years of age the risk is 1/164; and for a woman 40 years of age the risk is 1/51 (Hook, Cross, & Schreinemachers, 1983). Consequently, pregnant women of advanced maternal age are more likely to experience prenatal diagnostic testing, including amniocentesis, to detect fetal abnormalities.

Detecting potential fetal complications and anomalies is a component of antenatal care. The normative fear and anxiety associated with pregnancy may escalate when non-routine medical examinations are used in order to monitor the pregnancy. Amniocentesis is associated with heightened feelings of fear and anxiety increasing the possibility of anxiety-related adverse effects to the unborn child (Dixon, Richards, Reinsch, Edrich, Matson, & Jones, 1981; Evers-Kiebooms, Swerts, & van den Berghe, 1988; Finley, Varner, Vinson, & Finley, 1977; Johnson and & Summers, 1994; McGovern, Goldberg, & Desnick, 1986; Verjaal, Leschot, & Treffers, 1982; Wright, 1994). Risks inherent in the invasive amniocentesis procedure create additional anxiety and tension in women. Coping with these feelings may include relaxation techniques, such as, progressive muscle relaxation, guided imagery, meditation and massage, but the only intervention consistently documented in the literature to reduce anxiety in women about to experience an amniocentesis is genetic counseling.

Genetic counseling has been sporadically identified as an intervention that reduced anxiety levels in pregnant women about to have prenatal diagnostic testing but evidence of its effectiveness has been scant and contradictory (Abuelo, Hopmann, Barsel-Bowers & Goldstein, 1991; Burton, Dillard, & Clark, 1985; Keenan, Basso, Goldkrand, & Butler, 1991). It is evident that most people would prefer to eliminate any

risk of loss or damage to an otherwise healthy pregnancy; thus an effective, noninvasive method of reducing anxiety in pregnant women during prenatal diagnostic testing is welcomed.

Currently, the use of complementary therapy interventions is increasing, and in Canada 3.3 million people practice one or more of these interventions (Alberta Heritage Foundation for Medical Research, 1997). The growing familiarity and usage of complementary therapies as consumer health choices have prompted nursing interest and scholarship into the specific types, implications, side effects, and efficacy of these techniques.

Reiki is a complementary therapy that is increasing in popularity. It is a wholistic, noninvasive, hands-on technique for relieving pain and promoting relaxation. There are four experimental investigations that researched the effectiveness of Reiki, but published articles are predominately anecdotal (Appendix A). The positive anecdotal relaxing effect from Reiki has led some nurses to consider it to be a viable option for comforting pregnant women during times of increased anxiety or tension. No studies were found where the effectiveness of Reiki on the anxiety in women about to experience an amniocentesis was evaluated. Maternal anxiety associated with prenatal diagnostic testing is recognized, yet attempts to alleviate the emotional trauma are not recorded. Would a Reiki treatment effectively decrease the anxiety of women about to experience their first amniocentesis? Research to alleviate maternal anxiety associated with amniocentesis will add to the body of nursing knowledge in that it will equip nurses to appropriately care for pregnant women experiencing prenatal diagnostic testing.

Once the decision to have an amniocentesis is made, anxiety surrounds the woman who attempts to prepare for, experience, and finally await the consequences of the procedure. High levels of anxiety can compromise the outcome of the pregnancy in childbearing women. The pilot study emphasizes the importance of effectively reducing the anxiety in pregnant women because it will benefit the pregnancy. Promoting comfort in women is a common focus for nurses during the antenatal, labor and delivery, and postpartum periods. Nurses who promote comfort in clients understand that the care must be multidimensional as anxiety can be overtly evidenced through developmental, psychosocial, intellectual, and spiritual indicators (Potter & Perry, 1989). Although any outcome of the amniocentesis cannot be altered, implementing effective anxiety reducing techniques would enable nurses to assist women to cope with the anxiety immediately associated with the procedure that would ultimately benefit the entire pregnancy.

CHAPTER II: RESEARCH DESIGN

Three study groups (that is, the Reiki treatment group, placebo Reiki treatment group, and control group) were evaluated over time. Key terms were specifically defined conceptually and operationally for this study.

Conceptual Framework

Martha Rogers (1990) identifies the introduction of new, noninvasive modalities, for nurses such as Reiki. Rogers' Science of Unitary Human Beings Model is consistent with Reiki in that it is concerned with the patterns of the human and environmental energy fields that are associated with maximum well being (Rogers, 1992a). The model possesses several unique concepts that require explanation; they are energy fields, openness, pattern, and pandimensionality.

Rogers (1987) stated that the fundamental unit of all living and nonliving things is the energy field. Human beings and the environment *are* energy fields, and these energy fields are not unidimensional (that is, only biological, physical, social, or psychological). Openness is a characteristic of the human being and environmental energy fields, that is, they are continuously open, extend to infinity, integral to each other, and in continuous motion (Rogers, 1990,1992c). Energy fields have unique wave patterns that are ever changing and indirectly observable as events in reality (Rogers, 1970, 1992b).

Pandimensionality best expresses the notion of unitary whole and is defined as "...a nonlinear domain without spatial or temporal attributes" (Rogers, 1992, p. 29). It is a method of perceiving reality where "...the relative nature of change becomes explicit" (p. 31). This view allows for the explanation of paranormal events (Quillin &

Runk, 1989). In a pandimensional world, there is no linear time or separation of the human and environmental fields thus the present is relative to the person. Consequently, explanations of the efficacy of complementary therapies are possible within Rogers' model (1992b).

The *unitary human being* is an "an irreducible, indivisible, pandimensional energy field identified by pattern and manifesting characteristics that are specific to the whole and which cannot be predicted from knowledge of the parts" (Rogers, 1992c, p. 29). Human beings possess the capacity to change and participate actively in times of change (Quillin & Runk, 1989). The *environment* is defined as "an irreducible, [indivisible], pandimensional energy field identified by pattern and integral with the human field" (Rogers, 1992c, p. 29).

Rogers (1970) views health and illness as part of the same continuum, but does not consider these two conditions as dichotomous. Wellness and illness are value terms defined by individuals, culture, and society (Rogers, 1970). The diversity of patterning in each unique human being interacting with a unique environment is emphasized, thus individualized nursing care is essential. Nursing is regarded as a learned profession with an abstract body of knowledge arrived at by scientific research that is used creatively for human betterment (Rogers, 1992a).

Rogers' Science of Unitary Human Beings Model provides a stimulus for and gives direction to nursing science that guides nursing practice so that individual health potential is maximized. Rogers (1992b) postulates that people will participate knowingly in the process of change to progress towards his/her potential. "The goal of nursing focuses on the promotion of health and well being and on the integral

relationship between the human and environmental energy fields" (Fawcett, 1995, p.387).

Operational Definitions

Anxiety is the dependent variable or outcome measure for the study. Anxiety is defined as subjective feelings of apprehension or distress at a particular moment in time, usually at a certain level of intensity, and determined by the participants' verbal reports of their Subjective Units of Disturbance responses over time (i.e. their self report score on a scale of zero to ten) and on the Sheehan Patient-Rated Anxiety Scale.

Procedural Point is one distinct moment before, during, and after the amniocentesis identified for measuring anxiety in the participants. A total of seven procedural points were utilized in the study: (a) arrival at the Perinatal Clinic, (b) after the treatment or no-treatment, (c) immediately after the ultrasound, (d) immediately prior to insertion of the amniocentesis needle, (e) immediately after removal of the amniocentesis needle, (f) after completion of the amniocentesis procedure, and (g) two weeks after the amniocentesis procedure but prior to the diagnostic results (Table A, Appendix B).

Table A: Description of Procedural Points

Procedural Point		Identified Event
PP1	Pre-treatment / Baseline	Upon arrival to the clinic
PP2	Post-treatment	Returns to clinic from treatment room
PP3	Completion of ultrasound	Immediately after the gel is wiped off the abdomen
PP4	Immediately prior to insertion of the amniocentesis needle	Perinatologist has cleansed area and instruments are prepared
PP5	Immediately after removal of the amniocentesis needle	Disinfectant is wiped off the abdomen and instrument tray is taken away
PP6	Amniocentesis procedure is over	Woman is able and ready to leave the clinic
PP7	Two weeks post amniocentesis	Amniocentesis results remain unknown

Amniocentesis is the common upcoming event that will initiate a situational anxiety response in all participants involved in the study. A traditional amniocentesis is a sterile, invasive prenatal diagnostic procedure where ultrasonography is used to guide a needle to be inserted transabdominally into the amniotic sac of a pregnant woman to aspirate a sample of amniotic fluid. The sample of amniotic fluid is cultured and analyzed for chromosomal abnormalities (Green & Statham, 1993; Wilcox et al., 1993).

Reiki Treatment intervention is the independent variable. Conceptually, it is a touch therapy intervention where a trained and certified Reiki practitioner places her hands on the participant to initiate a healing response. Specifically for the study, it is a certified second degree Reiki practitioner who accesses and channels universal energy to the participant. The practitioner's hands are in contact with and positioned over the

participant's eyes and sides of her head, underneath her head, over her upper chest and abdomen, and under both heels of the feet (Appendix C). The hands are kept in place for five minutes at each location; thus a complete Reiki treatment lasts for 30 minutes in this study. The hypothesis is that the Reiki practitioner will be able to access and channel the universal energy required for the Reiki treatment to rebalance energy levels affected by anxiety.

Placebo Reiki Treatment intervention is the second independent variable. The participant is touched on identical Reiki treatment hand positions as stated previously (Appendix C) by a person who is not trained or certified to practice Reiki. The placebo practitioner resembled the true Reiki practitioner and possessed no knowledge of or experience with Reiki and, in fact, was a skeptic of hand-mediated energy therapy. If the hypothesis is correct, the placebo practitioner will fail to access and channel the universal energy required for the Reiki treatment to rebalance energy levels affected by anxiety.

Control or *no-treatment* is the assigned group where there was no intervention. The participant was escorted to and remained in one of the treatment rooms for 30 minutes. During this time, the participant was alone. After 15 minutes one practitioner knocked on the door, briefly entered the room, asked the woman "Are you alright?", waited for a response, left the room, and closed the door. There was no further conversation and no physical contact.

Outcome Measures and Tools

Anxiety is the primary outcome measure in the study. "People often differ in how they cognitively appraise and rate the same event" (Davis, Maguire, Haraphongse,

& Schaumberger, 1994, p. 141); consequently, anxiety is subjective and is experienced differently among participants. As a result, the instruments chosen to measure anxiety in this study were self-reported with each participant serving as her own control.

The instruments carefully selected to measure anxiety were congruent with the intended purpose and conceptually consistent with the theoretical and measurement perspectives employed for this study. Two instruments were used to measure anxiety. They were the Sheehan Patient-Rated Anxiety Scale (SPRAS)(Appendix D) and the Subjective Unit of Disturbance Scale (SUDS) (Appendix E). The SPRAS questionnaire reflected a global indication of the severity of anxiety within a time frame experienced by participants. The SUDS response indicated each participant's immediate anxiety (Wolpe & Lazarus, 1966).

The SPRAS developed by Sheehan (1983) is a questionnaire that lists 35 problems or complaints (Appendix D). The SPRAS is a five-point subjective rating scale ranging from zero (*not bothered at all by the problem*) and four (*extremely bothered by the problem*). The responses were added to attain a score between zero and 140. A total score of zero to 30 reflected mild anxiety, 31 to 50 moderate anxiety, 51 to 80 marked anxiety, and 81 to 140 severe anxiety (Sheehan, 1983). The SPRAS was administered on two occasions. Participants completed the pre-treatment SPRAS questionnaire after signing the consent form. It is important to note that participants were asked to what extent these problems have bothered or distressed them during this pregnancy to date rather than over the past 6 months as outlined on the questionnaire. Approximately two weeks after the amniocentesis, participants completed the post-treatment SPRAS questionnaire. This time participants were asked to what extent these

problems have bothered or distressed them since the original SPRAS questionnaire was completed.

Reliability calculations on the scale have not been reported; however, it possesses face validity (Terrry Davis, PhD., personal communication, April 15, 1998) and its content validity had been tested by comparing it with the well-validated and reliable Structured Clinical Interview for DSM-III (SCID). The SPRAS questionnaire correctly classified approximately 72 percent to 77 percent of patients as having an anxiety disorder, based on the SCID. The sensitivity at a score for 40 was 0.48 while the specificity was 0.94 (Kick, Bell, Norris, & Steiner, 1994).

The SUDS tool is an eleven-point subjective anxiety rating scale developed by Wolpe and Lazarus (1966) where zero represented no feelings of anxiety and ten represented feelings of extreme anxiety. There are no correct or incorrect responses. A training session was required, and the primary investigator trained each participant to use the SUDS to report their anxiety levels during the study (Davis et al., 1994) (Appendix F). After being taught to use the SUDS, each participant was asked to verbally report her anxiety level at the seven identified procedural points in the study (Appendix B). The SUDS instrument had been used in several investigations (Craske & Rachman, 1987; Davis, et al. 1994; Forsyth, Eifert, & Thompson, 1996; Hunsley, 1985). It is a visual analogue scale (VAS), thus the general psychometric properties of VAS may apply (Cline, Herman, Shaw, & Morton, 1992).

These patient-rated and visual analogue type scales were used in this research study because the response burden was minimal in that the instruments were simple, easy to administer, required minimal time to complete, and age-appropriate (Bernstein

& Garfunkel, 1992). Anxious clients have felt that these types of scales accurately reflect a careful and thorough measurement of their complaints (Sheehan, 1983). However, these instruments possess experimental limitations because they are susceptible to bias due to the use of a subjective measurement of anxiety. This study was primarily concerned with women's perception of anxiety associated with amniocentesis, thus the individual and unique report of the experience were believed to have been measured most appropriately and accurately by the instruments.

Development of a Placebo Reiki Treatment Intervention

A description of a placebo Reiki treatment intervention was not found in the literature prior to completion of this study, thus one was developed for the study. The placebo Reiki practitioner was a person who was skeptical about Reiki therapy; possessed no healthcare background; was of the same gender, physique, ethnicity, and age group as the Reiki practitioner; and had no experience with Reiki or other hand energy mediated treatment modality. In the first phase, the Reiki practitioner taught the placebo Reiki practitioner the six hand positions used in this study. In the second phase, a volunteer participant with no experience with Reiki was recruited, and both the Reiki and placebo Reiki practitioner provided her respective intervention on the volunteer participant, with the order of the treatment being randomly determined.

In the final phase, the primary investigator observed each of the hand positions of each practitioner. It was indicated to each practitioner whether the hand placements were identical or different by the primary investigator's observations or the volunteer's perceptions. The differences were explained and communicated in detail to the practitioners in order to improve exact hand placement. The second and third phases

were repeated until no observable or perceived difference in the hand placements as well as the hand pressure of each practitioner was achieved.

CHAPTER III: RESEARCH METHOD

The study was a pilot for a prospective partially double blind; randomized controlled clinical trial with repeated measures. For all participants, the site for the amniocenteses was at a clinic located within a tertiary hospital in Western Canada, and the site for the Reiki, placebo, and control groups was two private rooms located a floor beneath the clinic. Site approval and ethical clearance for the study was obtained from the appropriate health ethics committees (Appendix G).

Subsequently, thirty participants were identified from the clinic population of pregnant women with appointments for an amniocentesis from July 01, 1999, to February 01, 2000. The nonprobability convenience sample of pregnant women met the following inclusion criteria. They (a) were 35 years of age or older at the expected date of birth, (b) were between 15 and 18 weeks pregnant, (c) had no experience with Reiki, and (d) planned to have their first amniocentesis at the clinic due to advanced maternal age, (e) had not been diagnosed with a panic or generalized anxiety disorder, (f) spoke and read English, and (g) were willing to sign the written informed consent form.

Information letters concerning the study were provided to all clinic staff (Appendix H). The primary investigator reviewed the names of prospective women who had an amniocentesis appointment due to advanced maternal age and lived within the metropolitan area. Eligible women were telephoned and asked if they would be interested in knowing more about the study. The primary investigator met with each woman who was interested a couple of days prior to the scheduled amniocentesis. Each woman was provided with a detailed written and oral explanation of the information

form (Appendix H), Reiki information letter (Appendix C) and consent form (Appendix I).

The risks and benefits of the study were clearly communicated in the written consent form that was read, understood, and signed by potential participants. A copy was given to each participant prior to commencement of the study. It was communicated to the participants that if they were assigned to the Reiki treatment group, they might experience a decrease in anxiety and increase in relaxation if the hypothesis is correct. In addition, negative effects of Reiki have not been identified; however, if discomfort occurred during or after the treatment, it was planned that breathing techniques would be implemented and/or the treatment stopped. This did not occur.

A maximum total of 110 minutes was required by each participant to complete the study. Participants were asked to complete the Demographic Data questionnaire (Appendix J)(10 minutes), the SPRAS questionnaire (Appendix D) (15 minutes), a SUDS training session (Appendix F)(10 minutes), and an interview (Appendix K) (30 minutes). Additional time was required for the treatment or no treatment intervention prior to the amniocentesis (30 minutes). Two weeks after the amniocentesis, participants were telephoned and asked to complete a final SPRAS questionnaire and to provide a final SUDS response (15 minutes).

The participants were instructed to telephone the primary investigator with any questions they had regarding the study to ensure the information provided to all the participants was standardized. The women were reassured that they may withdraw from the study or refuse to answer any questions at any time without penalty or change in obstetric or nursing care. After written informed consent was obtained and a copy given

to the participant, each was asked to complete the Demographic Data (Appendix J) and SPRAS questionnaire (Appendix D) and complete a short training session using the SUDS (Appendix F). The initial responses of each participant served as a baseline on both instruments, thus each participant served as her own control.

The responses of each participant were placed into an envelope labeled with her code number and the date and time of her amniocentesis. All information was kept confidential. Each participant was given a code number and remained anonymous to the Reiki practitioner, placebo Reiki practitioner, and research assistant. Only the primary investigator knew the true identity of each participant. Responses from the Demographic Data questionnaire, the SPRAS questionnaire, and the SUDS were coded to assure anonymity. The consent forms were kept in a locked cabinet separate from the data. All the data were locked in a cabinet that could only be accessed by the primary investigator or her supervisor.

Participants were randomly assigned to one of the three groups using a process of blocked randomization. A computer generated blocked randomization list was created by a colleague of the primary investigator and the master copy was sealed until all data were collected. The assigned group was coded as *A* for the placebo Reiki practitioner, *B* for the Reiki practitioner and *C* for the control group. The coded group assignment was written on a piece of paper and sealed in an opaque envelope and labeled with a code number. As a result, the participants, research assistant, primary investigator, and perinatologist were blinded to the group assignment of each participant.

Participants arrived between thirty to sixty minutes prior to their amniocentesis appointment. A research assistant or the primary investigator greeted her at the clinic's registration desk, asked for her SUDS response at this time, and recorded it (Procedural Point 1) (Appendix B). The participant was given eight ounces of water to drink for the amniocentesis if she had not had anything to drink at this point in time, and then escorted to the treatment rooms on the lower floor.

The participant was greeted by and introduced to both practitioners. The primary investigator gave a practitioner the appropriately coded sealed envelope and returned to the clinic to wait for the participant. The sealed envelope was opened by a practitioner and never by the primary investigator. The participant was escorted to the group appropriate room. Participants in the control group were escorted to the same room where the treatments were performed. The research assistant was blinded to the identity of the certified Reiki practitioner.

Two private, adjacent, and mirror image rooms were used. Both rooms possessed the identical massage table, linen, lighting, temperature, and environmental noises. There were no candles or music present and the telephones were disconnected. The only physical difference was that one room had a desk, computer, and filing cabinet in it. A plain white sheet covered these items, and also, the practitioner was different. The actions of each practitioner were identical with each participant (Appendix L). The participant stepped onto a step stool up to the massage table, laid comfortably on her back on the table, and was offered a blanket. Ideally, no talking between the practitioner and participant should have occurred throughout the 30-minute treatment, unless the participant was uncomfortable. Practitioners refrained from initiating any conversation

with the participants. Any discussions that occurred were recorded in a notebook by the practitioner and handed to the primary investigator after all the data were collected (Appendix M).

The Reiki and placebo Reiki practitioner completed zero to two treatments each day. The placement and warmth of each practitioner's hands were the same, as well as the amount of time her hands remained on each area of the participant. While the participant lay comfortably on her back, placement of the practitioner's hands included over both eyes and the temple area, under the head, over the upper chest and abdomen, and under both heels of the feet. The hands remained on each of the six areas for five minutes starting with the head, through the torso and finishing with the feet.

After 30 minutes in the room, the participant was escorted back to the clinic, where she met the primary investigator, who asked her for and recorded her SUDS response (Procedural Point 2). The participant waited in the waiting room for the nurse to call her for the amniocentesis appointment. Once the participant's name was called, she was escorted to a room, given a hospital gown to change into, and asked routine questions by the nurse. The participant waited in the room until one of nine ultrasonographer technicians came to escort her to one of the four diagnostic rooms for an ultrasound. The frequency of the room used ranged from 3.3 percent, 26.7 percent, 30.0 percent, and 40.0 percent of the time. A technician (24), ultrasonographic student (4), or physician (2) completed the ultrasounds. The majority of participants (60 percent) had their husbands present during the amniocentesis while other support persons included a sister, mother, or friend. One third of the time it was the nurse. The participant was asked for her SUDS response after the ultrasound was completed

(Procedural Point 3), prior to insertion of the needle for the amniocentesis (Procedural Point 4), and after the needle was removed (Procedural Point 5). There were two participants who required a second amniocentesis needle; thus Procedural Point 5 was recorded after the second needle was removed. Irregularities (10.7 percent) that occurred during the amniocentesis included inserting the amniocentesis needle through the placenta, placenta previa, and finding evidence of a previous bleed.

Once the procedure was completed, the participant went to the lavatory, returned to her room, and changed into her clothes. The primary investigator knocked on the door of her room and entered to obtain the participant's final SUDS response for the day (Procedural Point 6). Each of the participant's SUDS responses was graphed (Appendix N), and a short interview (Appendix K) was conducted to examine the participant's experience of having an amniocentesis.

The interview was tape recorded and transcribed verbatim. The interview included open-ended questions focusing on the participant's changes in SUDS responses from one point in time to another (Appendix K). The questions captured the underlying anxiety stimulus for each participant at specific points in time. The interview of each participant was coded to assure anonymity. All names and identifying information were removed from participant responses. Two weeks after the amniocentesis and prior to the amniocentesis results, each participant was telephoned to complete a final SPRAS questionnaire and SUDS response. Participants were asked for the highest and lowest SUDS response experienced since the amniocentesis (Procedural Point 7, Appendix B).

CHAPTER IV: ANALYSIS AND FINDINGS

All data were entered into a database and analyzed using the Statistical Package for the Social Sciences (1996). Descriptive statistics including measures of central tendency were used to describe the sample. Repeated measures analyses of variance were used to compare SUDS responses between groups. Post hoc analysis was completed to determine whether pre-treatment maternal anxiety levels in the groups were equivalent. The completed SPRAS questionnaires were analyzed using the Sheehan (1983) scoring system. The pre-treatment and post-treatment SPRAS scores of all three groups were analyzed using analysis of variance. Finally, chi-squared cross tab analysis was performed to determine possible co-variates. A p-value of less than 0.05 was considered significant for all data analyses in this study.

Sample Description

A total of 30 women were enrolled in the study; 23 women completed the entire protocol. There were two incomplete amniocenteses; the first was due to early fetal gestational age (less than 15 weeks by ultrasound), thus the amniocentesis was not performed at all; the second participant experienced the needle inserted into her abdomen, but a separation occurred that made puncturing the amniotic sac unsuccessful. In each case the amniocentesis was postponed and rescheduled. There were two participants who experienced a second amniocentesis needle, one because the participant was pregnant with twins in individual amniotic sacs and the other because the initial attempt to insert the amniocentesis needle was unsuccessful.

After written informed consent was obtained, participants (n=30) provided demographic data. This was each participant's first traditional amniocentesis and the

maternal age ranged from 34 to 45 years with a mean of 36.97 years (SD 2.28) at the time of the procedure. Each participant responded negatively when asked whether she had a history or diagnosis of general anxiety or panic disorder. Six participants identified complications with the current pregnancy and five provided information about the complication (ovarian cyst, bleeding, gestational diabetes, fibroids, miscarriage of a possible twin). Five reported a familial history of a genetic disorder (i.e., emphalecele, Down's syndrome, spina bifida, and cleft and lip palate). The number of previous pregnancies for the participants ranged from zero to twelve (mean=2.52, SD 2.39). Twelve had no children; 13 had one child; two had two children; and two had three children at home. Nine participants had experienced at least one miscarriage.

Twenty-seven participants (90 percent) were taking vitamins while nine (30 percent) took over the counter or prescribed medications. The gestational age of each fetus was determined on the day of the amniocentesis based on ultrasound measurements and ranged from 14.00 weeks to 20.57 weeks with a mean fetal gestational age of 16.00 weeks (SD=1.20). One third of the participants reported a fear of needles. Five (16.70 percent) required another injection after the amniocentesis to provide Rhogam for rhesus incompatibility or to obtain blood samples.

Only five women were single or divorced, 23 had completed an educational level greater than high school, and 25 (83.30 percent) were employed outside of the home. Reported occupations included clerical and sales workers (16.67 percent); technical and semi-professional workers (26.67 percent); and administrators, executives, and professionals (40.00 percent). Ethnicities included Canadian, English, German, Indian, Latin American, Ukranian, or two or more different ethinicities. A variety of religious

denominations were represented: Anglican, Catholic, Christian, Church of England, Hindu, Lutheran, Pentecostal, Protestant, and United. Three participants did not identify with any religious affiliation.

Family income was not included because many participants documented individual rather than total family incomes. In addition, although almost two thirds of participants received genetic counseling there was a misinterpretation regarding the definition of genetic counseling. It is an expectation from the clinic that women receive genetic counseling prior to an amniocentesis, and they are referred to one of two genetic counselors that work with the clinic. The majority of participants who stated that they received genetic counseling revealed that their own family doctor or obstetrician provided information rather than actually being referred to a genetic counselor. As a result, the information provided to each participant was not standardized.

The participant's response to her knowledge of Reiki was inaccurate as this question was answered after the information letter was read. None of the participants had experienced Reiki. Their openness to an energy balancing treatment (with five being extremely open on a scale of one to five) ranged from 1 through 5 (mean= 4.27). Forty seven per cent of participants reported that they were extremely open to a noninvasive energy balancing treatment, 3.30 percent reported that were not open at all, and 50.00 percent answered either a three or four on a scale of five. In addition, eight participants (26.70 percent) had experienced other energetic healing therapies such as acupressure, shiatsu, or reflexology.

Demographic and reproductive variables that were tracked during the course of the study are listed in Table B. The Pearson chi-squared analysis for binary data was

performed to identify co-variates, and found that there was a significant difference among groups with respect to taking medications (p=0.036). Furthermore, group differences associated with pregnancy complications (p=0.082) and experience with other energetic therapy (p=0.053) approached significance. Despite these findings, the assumption of homogeneity across the groups is supported for all other variables.

Table B: Pearson Chi-Squared Cross tab Results for

Group Assignment*Demographic Item ($p<0.05$)

Demographic Item	p-value	Df
Previous abortion	0.866	2
Children at home	0.525	2
Complications during amniocentesis	0.371	2
Complications with pregnancy	0.082	2
Education level	0.271	2
Employed outside of home	0.153	2
Energetic therapy experience	0.053	2
Experienced Reiki before	Constant	
Familial history of genetic disorder	0.383	2
First amniocentesis	Constant	
First pregnancy	0.366	2
Genetic counseling	0.482	2
Know what Reiki is	0.749	2
Marital status	0.383	2
Medications	0.036	2
Previous miscarriage	0.621	2
Nurse "Jane" present	0.186	2
Perinatologist "N.O." performed amnio	0.873	2
Second needle post amniocentesis	0.186	2
Sonographer student present	0.861	2
Trauma experienced 2 weeks later	0.683	2
Vitamins	0.329	2

SPRAS Questionnaire Data Results

Each participant (n=30) completed the pre-treatment Sheehan questionnaire immediately after signing the written consent form. The mean scores are depicted in Table C. Mild anxiety was reported by 63.3 percent of participants, moderate anxiety

by 33.3 percent, and marked anxiety by 3.3 percent. None reported severe anxiety. Both the placebo and control groups had a greater number of mild anxiety scores than moderate anxiety scores; however, there was one participant with a marked anxiety score in the control group. The Reiki group was evenly divided between mild and moderate anxiety scores.

Table C: Pre-treatment SPRAS Scores and Classification

Group	N	Mean	Standard Deviation	Mild (0-30)	Moderate (31-50)	Marked (51-80)	Severe (81-140)
Placebo	10	26.10	19.35	8	2	0	0
Reiki	10	28.90	11.58	5	5	0	0
Control	10	28.70	14.70	6	3	1	0
Total	30	27.90	15.05	19	10	1	0

A total of 23 participants (23.30 percent missing data) completed the post-treatment SPRAS questionnaire as depicted in Table D. Participants were contacted an average of 16 days after the amniocentesis (range 13-22 days). The data were collected while all participants (except one) were unaware of the amniocentesis results. Fifteen (65.2 percent) experienced mild anxiety, six (26.1 percent) experienced moderate anxiety, and two (8.7 percent) experienced marked anxiety. None reported severe anxiety. Mild anxiety scores were the majority in all three groups. There were two marked anxiety scores, each in the Reiki and control group.

Table D: Post-treatment SPRAS Scores and Classification

Group	N	Mean	Standard Deviation	Mild (0-30)	Moderate (31-50)	Marked (51-80)	Severe (81-140)
Placebo	7	21.00	8.98	4	3	0	0
Reiki	7	25.57	23.52	5	1	1	0
Control	9	27.67	21.64	6	2	1	0
Total	23	25.00	18.74	15	6	2	0

When comparing the pre-and post-treatment SPRAS, there was an increased proportion of participants whom experienced mild and marked anxiety levels, while the proportion of participants whom experienced moderate anxiety decreased. Using the one-way ANOVA, the SPRAS scores between pre-treatment and post-treatment were analyzed and no significant difference was found as depicted in Table E.

Table E: Comparison of SPRAS Scores (ANOVA)

	df	F	p-value
Pre-SPRAS	2	0.101	0.904
Post-SPRAS	2	0.236	0.792

Group assignment did not have an effect on participant anxiety two weeks after the amniocentesis. A Pearson Correlation (with excluded cases pair wise) between groups pre-and post-treatment SPRAS scores was $r=0.620$ ($p<0.01$, 2- tailed) $p=0.002$. The pre-treatment scores were significantly correlated with the post-treatment scores.

SUDS Responses Procedural Points1-6 Data Results

Although the total sample size was 30, the total number of participants who reported their first six SUDS scores was 29. Participants in each group used the entire eleven-point SUD scale. The findings are summarized in Table F and visually described (Figure 1; Appendix O) to compare group means and percentiles.

The mean anxiety level of participants in the placebo and Reiki treatment group resembled each other. The mean SUDS responses for the placebo and Reiki treatment group decreased between pre-treatment (PP1) and post-treatment (PP2), whereas in the control group, the level of anxiety remained the same. The control group maintained a mean SUDS response across the first three procedural points. Prior to the insertion of the amniocentesis needle (PP4), the mean SUDS responses are at their highest in all three groups with the control group reporting the highest numbers and the Reiki treatment group reporting the lowest numbers. Immediately after the amniocentesis needle was removed from the abdomen (PP5) the SUDS responses decreased for all groups and continued to decrease until the woman was ready to leave the clinic (PP6). It was at this procedural point that the lowest mean SUDS responses were recorded for all groups.

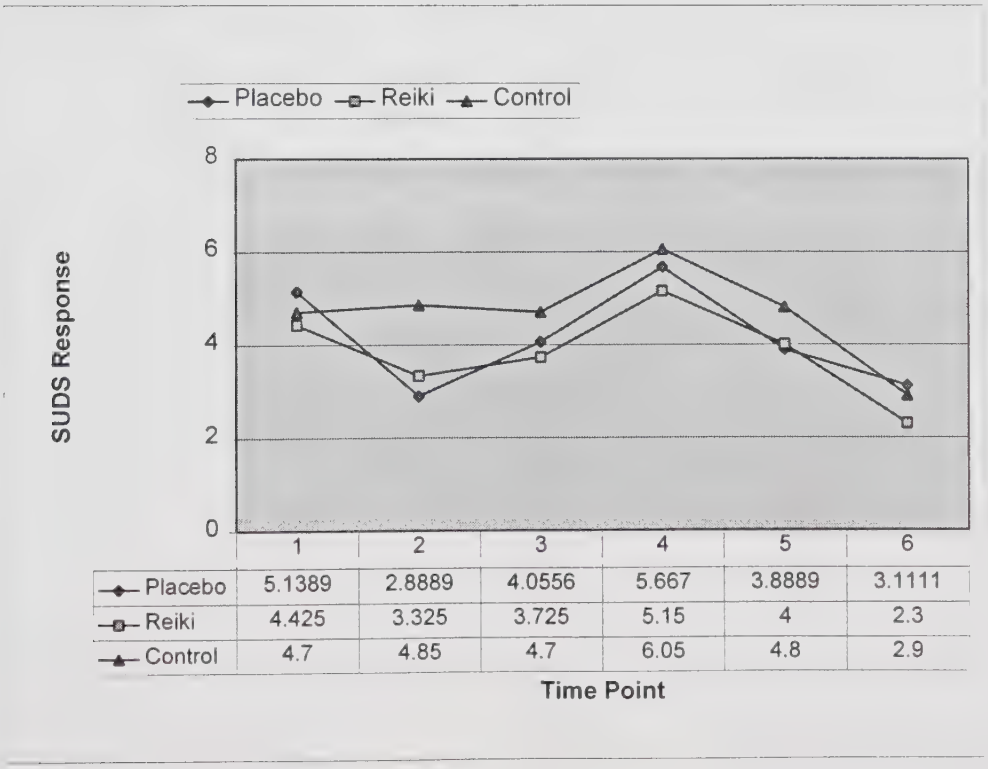
The Reiki treatment group reported the lowest mean SUDS response (mean=2.3 at PP6) and the control group reported the highest mean SUDS response (mean=6.05 at PP4) throughout the entire six procedural points. There was a decrease in mean SUDS response in the control group between removal of the amniocentesis needle (PP5) and departure from the clinic (PP6), but the decrease was not as much as the treatment

groups. In addition, when compared to the treatment groups, the control group reported a higher mean SUDS response at all procedural points, except at arrival to the clinic.

Table F: Mean SUDS Response by Assigned Group Across Procedural Points

SUDS	Group	Mean	SD	N		SUDS	Group	Mean	SD	N
Pre-Treatment **PP1**	Placebo	5.1389	1.7550	9		Amnio needle to be inserted **PP4**	Placebo	5.6670	1.6583	9
	Reiki	4.4250	2.1796	10			Reiki	5.1500	2.7694	10
	Control	4.7000	2.2136	10			Control	6.0500	3.0409	10
	Total	4.7414	2.0172	29			Total	5.6207	2.5237	29
Post Treatment **PP2**	Placebo	2.8889	0.8937	9		Amnio needle removed **PP5**	Placebo	3.8889	2.1906	9
	Reiki	3.3250	2.6459	10			Reiki	4.0000	2.9155	10
	Control	4.8500	2.6463	10			Control	4.8000	2.6268	10
	Total	3.7155	2.3373	29			Total	4.2414	2.5482	29
Completed Ultrasound **PP3**	Placebo	4.0556	1.3097	9		Ready to leave clinic **PP6**	Placebo	3.1111	1.9808	9
	Reiki	3.7250	2.1936	10			Reiki	2.3000	2.1108	10
	Control	4.7000	2.7508	10			Control	2.9000	2.4244	10
	Total	4.1638	2.1550	29			Total	2.7586	2.1365	29

Figure 1: Group Comparison of Mean SUDS Response Across Procedural Points



The mean SUDS response for procedural points one through six were analyzed using the one-way ANOVA and no significant difference between groups was found (Table G).

Table G: ANOVA of SUDS Responses by Procedural Points

Procedural Point	df	F	p-value
PP1-Pre-treatment	2	0.501	0.611
PP2-Post-treatment	2	1.794	0.186
PP3-Completed ultrasound	2	0.501	0.611
PP4-Prior to amnio needle insertion	2	0.304	0.740
PP5-Amnio needle removed	2	0.354	0.705
PP6-Ready to leave clinic	2	0.358	0.703

Changes in SUDS Responses Across the Six Procedural Points

A General Linear Model Repeated Measures Analysis of Variance was performed on each mean SUDS response. Each participant's SUDS response from post-treatment (PP2) until departure from the clinic (PP6) was compared to the pre-treatment (PP1) SUDS response, thus a total of five Compared-Time (CT) variables were created (Table H). There was a significant main effect for CT 1 ($p=0.002$), CT 3 ($p=0.047$), and CT 5 ($p=0.000$) across all groups. Ignoring time, there was a significant difference between groups when the post-treatment SUDS response was compared to the pre-treatment SUDS response (CT 1) ($p=0.013$). This difference was seen in the treatment groups in comparison to the control group (Figure 1).

Table H: Compared Time Variables: General Linear Model

Source	Compared Time (CT)	Procedural Point (PP)	df	F	p-value	Observed Power
Time Across Groups	CT 1	PP 1 & PP 2	2	5.143	0.013*	0.778
	CT 2	PP 1 & PP 3	2	0.619	0.546	0.142
	CT 3	PP 1 & PP 4	2	0.358	0.703	0.101
	CT 4	PP 1 & PP 5	2	0.478	0.625	0.120
	CT 5	PP 1 & PP 6	2	0.044	0.957	0.056

When the SUDS responses across time are viewed, the p-value was significant for all three groups at the same three procedural points when the mean SUDS responses acquired at post-treatment (PP2), immediately prior to insertion of the amniocentesis needle (PP4), and when ready to leave the clinic (PP6) were each compared to the mean baseline SUDS response (Table I). The findings indicate that the SUDS instrument appropriately measured individual women's anxiety. Each participant's subjective, individual, and unique experience was accurately captured with the use of the SUDS.

Table I: Compared Time Variables Across Time: General Linear Model

Source	Compared Time (CT)	Procedural Point (PP)	df	F	p-value	Observed Power
Difference Over Time	CT 1	PP 1 & PP 2	1	12.371	0.002*	0.923
	CT 2	PP 1 & PP 3	1	2.186	0.151	0.296
	CT 3	PP 1 & PP 4	1	4.367	0.047*	0.521
	CT 4	PP 1 & PP 5	1	0.874	0.358	0.147
	CT 5	PP 1 & PP 6	1	18.189	0.000*	0.984

SUDS Responses Procedural Point 7 - Two Weeks Post Amniocentesis Data Results

There were only 23 participants who were successfully contacted two weeks after her amniocentesis for the two final SUDS responses. These responses were the highest and lowest anxiety levels experienced since leaving the perinatal clinic. As a result these responses were not compared to procedural point one (baseline) and were

analyzed differently than the previous SUDS responses. Each participant was asked whether any traumatic event had been experienced since the amniocentesis appointment. Six participants responded affirmatively (20 percent) and 18 reported that they did not did not experience such an event (60 percent). The lowest mean SUDS responses ranged from 0-4 and the highest responses ranged between 1-10. One-way ANOVA with linear contrast analysis revealed no significant difference between groups an average of 16 days after the woman's amniocentesis (Table J)(Appendix P).

Table J: ANOVA of SUDS Responses Two Weeks Post Amniocentesis

SUDS	Group	Mean	SD	N	df	F	p value
PP 7a	Placebo	2.7857	0.9940	7	2	2.216	0.135
Lowest	Reiki	1.6786	1.2476	7			
	Control	1.6667	1.2247	9			
PP 7b	Placebo	6.5000	1.8930	7	2	0.706	0.505
Highest	Reiki	4.7500	2.8976	7			
	Control	5.6667	3.1623	9			

CHAPTER V: QUALITATIVE FINDINGS

Qualitative methods implemented in the study were the interviews and short answer questions on the demographic questionnaire. The focus of the face-to-face, open-ended, semi-structured interview was to understand what was stimulating the increase or decrease of the SUDS responses. The interviews ranged from 15 minutes to 35 minutes allowing the participant to sufficiently describe the personal experience (Morse & Field, 1995). Each participant was shown all her reported SUDS responses graphically (Appendix N). Each time point was described in detail to anchor the participant back to the procedural point by asking: "Do you remember when you arrived at the clinic and your number was a 'x'? What was happening?". The interview progressed from a general to a more specific information-gathering format to achieve depth (Morse & Field, 1995).

Data analysis began immediately after the first interview. A content analysis of each interview was performed where "…each interview is segmented …into categories" to completely describe the context of the study (Morse & Field, 1995, p. 140). The primary investigator reviewed each interview for key and repeating words or phrases that were coded in the margin, and a group of common data was identified using a category label (Morse & Field, 1995). As the data collection progressed, the data collected from other participants were used to validate developing categories (Morse & Field, 1995). Although each participant's experience was unique to herself, common themes were identified.

Perceptions of an Energy Balancing Treatment

The category *relaxation* was identified after the content analysis of the participants' written perceptions of an energy balancing treatment. Various positive descriptions included: "soothing", "pleasant", "calming", "harmless", "energizing", "no pain", "like getting a massage" and sleep inducing. However, the theme of not knowing what to expect emerged. A few stated that they needed to experience it first or were merely "unsure of" or "did not know" what to expect. There were two statements that reflected some skepticism: "I do not fully buy into it" and "a Reiki treatment might help anxiety, but so might other things" reflecting the participants who were not open to a noninvasive energy balancing treatment.

Procedural Point 1 – Arrival at the clinic (Pre-treatment)

The theme of *the unknown* strongly emerged when participants arrived at the clinic, that is, the not knowing what to expect at the clinic before, during, and after the amniocentesis. Many participants identified that outside sources contributed to their anxiety such as, lack of sleep, running late, fear of needles, and companions' actions. Others reported that they were concerned with something more important such as harm to or death of the fetus. One woman reported that she was anxious about the effects of a vaccination while unknowingly pregnant. Another did not perceive herself as a high risk for a birth defect and viewed the amniocentesis as an option available to her, and consequently, her anxiety level was low.

Procedural Point 2 – Return to the clinic from the treatment room (Post-treatment)

Similar to the perceptions of a energy balancing treatment, *relaxing* was the main theme at this procedural point. Feelings of "lightheadedness", "sleepy", "very

calm", and "not stressed" were verbalized. Although, several stated they could have fallen or fell asleep, there was a separation of being physically relaxed versus mentally relaxed. The thought of the amniocentesis or the risks associated with it remained in the back of several participants' minds, while others stated that they were not thinking of anything at all. Although, many stated that because they were in a physically different area that was not associated with the amniocentesis, a dramatic increase in their anxiety level was prevented. Ironically, it was at this procedural point the control group SUDS responses remained the same or increased.

Procedural Point 3 – Completion of the ultrasound

Seeing baby was the first category identified. Watching the baby move, the heart beating, two arms, two legs, and being alive excited and reassured participants. They reported feeling good or happy after the ultrasound. In addition, watching the baby was one of the *distractions* identified for the second category. The procedure of the amniocentesis was momentarily forgotten because the radiology technicians were talking and joking, and surrounding personnel were relaxed. *Anticipation* of the amniocentesis was the final category identified as several participants stated that once the ultrasound was done the needle was "around the corner". The time for the amniocentesis was coming. Fear of the unknown resurfaced referring to insertion of the needle, pain, complications of the procedure and miscarriage. Several participants acknowledged that length of time increased their SUDS response. Participants became concerned when they were waiting for quite a long time for the arrival of the perinatologist after the ultrasound was completed. This concern escalated when the

participants were not given any information or explanation for the wait. The longer wait left them wondering "what's going on?".

Procedural Point 4 – Immediately prior to insertion of the amniocentesis needle

This was the point of *heightened anticipation* as evidenced by the highest SUDS responses. The actual amniocentesis was going to occur and fear of the unknown intensified. Participants identified events that occurred that they were not prepared for, such as, the increasing number of people in the room "all of a sudden", not being removed from the room to perform the amniocentesis, and keeping the room lights dim as contributing to their increased anxiety level. Participants stated that the *needle* was a primary focus point because it is thought to be "long", "huge", "painful", "foreign", "intruding", and going "in the abdomen". Being "[un]certain of exactly what it would feel like" was reported by participants. Feeling responsible for not moving emerged as many stated that they were afraid to move and felt the intense need to "hold still". The consequence of the baby being poked resulted in the major theme of *hurting the baby*. Thoughts of miscarriage were also included in this category.

Procedural Point 5 – Immediately after removal of the amniocentesis needle

For the participants whose SUDS response decreased, they reported that this happened because the amniocentesis was *finally over*. There was "no more needle", "no more pain", "no more procedure" and they looked forward to "going home". A second theme was feelings of *relief* related to the procedure being uncomplicated. Several participants stated that they thought the procedure "went well", "went fine", "nothing happened", "baby wasn't hurt", and "expected it [amniocentesis] to be much worse". For participants whose SUDS responses elevated, *pain* was the major theme. Pain from

the needle insertion and the "cramping" and "stinging " afterwards were the stimuli. This pain was associated with the idea that "something [bad] was going to happen" and the potential for "losing the baby". Although the procedure was over, several participants began to wonder about the possible outcomes of the amniocentesis (i.e. complications and results).

Procedural Point 6 – Woman is ready to go home and leave clinic

SUDS responses decreased further, slightly increased or remained the same when the amniocentesis was over and the woman could go home. The theme of feeling *relief* because the procedure was over was predominant. Statements such as "no more pain"; "no more needle", "it is not unknown anymore", "it is all done, it's over with….[and] go home and relax" were reported. In addition, viewing an ultrasound during and immediately after the amniocentesis reassured the women that their unborn child was not hurt and "everything was still o.k.". Although the physical feelings and actual procedure was over, the potential outcomes of the amniocentesis had become foremost.

The stimulus for an increase in the participants' SUDS responses was related to concern about possible complications from the amniocentesis specifically, miscarriage. The risk of miscarriage is higher within the first 24 to 48 hours after the amniocentesis and several participants stated that they expected their anxiety level to remain slightly higher than their normal level until this time period passed. As one participant stated "the risks happen within 24 hours …and I still have the rest of the day". Another stimulus for increased anxiety was waiting for the amniocentesis results, "because it's a test and you don't have the results yet". Again, the theme of the *unknown* emerged.

In conclusion, the stimuli for the increase in the anxiety levels of women experiencing their first amniocentesis can be summarized as uncertainty and fear of the unknown that existed before, during, and after the amniocentesis. There was also the fear of harm to self or baby that was strongly evident. Having the procedure completed successfully with no harm or excessive pain contributed to the decreasing SUDS responses. Additionally, being away from the clinic in the treatment room or ready to go home aided in the relaxation of the women.

CHAPTER VI: DISCUSSION

This pilot study has provided a beginning foundation for continued research to evaluate whether a partial Reiki treatment is an appropriate noninvasive intervention to reduce anxiety in pregnant women undergoing amniocentesis for advanced maternal age. Furthermore, the feasibility of executing a larger study was evaluated and supported. The course of anxiety for women about to experience their first amniocentesis was reported. Qualitative data collected for each procedural point indicated that changes in anxiety levels were strongly associated with individual participant's ideational content and stimulus of the anxiety. These self-reported anxiety responses indicate that when the amniocentesis needle is about to be inserted, it is highly predictable that anxiety increases. However, when the entire procedure is finally over and it is time to go home, it can be expected that anxiety will decrease to its lowest levels.

Although the final sample size was 23, there appeared to be a normal distribution of variants among the three groups. The mean anxiety level of each group was similar across each individual procedural point. It was not expected that a significant difference between groups would be identified because of the small sample size; however, a significant difference between the treatment groups and control group was detected when the post-treatment SUDS response was compared with the pre-treatment SUDS response. An analysis of the data revealed that participants who received the placebo or Reiki treatment demonstrated a decrease in anxiety levels immediately post-treatment. The control group did not demonstrate this.

Touch by another person was the variable missing in the control group while in the treatment room. Whether the contact was by a Reiki practitioner or not, there was a significant decrease in the women's anxiety levels when compared to their own baseline response. It might be argued that the measurement instruments or method of analysis was not sufficiently sensitive to detect any differential effects. Levels of anxiety were assessed with global and immediate self-report measures and interviews.

Anxiety is a subjective experience, thus was measured with self-report measures and interviews and each participant served as her own control. However, Reiki is an Eastern therapy whose exact method for treatment may not be accurately evaluated through Western scientific rigor. Energy or *ki* of the individual is constantly interacting with others and the environment and may begin to explain the similar findings between the placebo and Reiki groups. The 30-minute Reiki treatment intervention was standardized for each participant, thus lacking the individualized therapy, time, and duration required for an individual to adequately self-heal.

Clearly there are several methodological limitations inherent in the study. Given these methodological limitations, the conclusions regarding the effect of a partial Reiki treatment in women about to have an amniocentesis can only be considered tentative and require refinement for a larger study. A difference between the placebo and Reiki treatment group was not detected in the pilot study. In addition, because this was a pilot study, the study was insufficiently powered, thus it cannot be concluded if variability was observed, and if there truly were any observed differences. The data from the pilot study will contribute in the calculation of an appropriate effect size on which to base a power analysis. An appropriate sample size needed to identify between group

differences and the importance of the significant difference found between the treatment and control groups in the pilot study.

Pilot Study's Strengths and Areas For Improvement

The experience of a pilot randomized clinical trial was a learning process and allowed the investigator to understand various facets of the method and design on a smaller scale. Through the pilot study, the research method and design was evaluated prior to considering a larger study. The research design and method possessed many strong attributes; but areas for improvement were identified. Firstly, the instruments for measuring anxiety were successfully tested. The SPRAS questionnaire and SUDS were easily administered, well understood by the participants, and gathered data regarding global and immediate anxiety levels. Both tools accurately measured the women's own unique anxiety level and provided a baseline measurement that allowed each woman to serve as her own control, thus strengthening the design.

Secondly, the study was acceptable to many women so recruiting participants was simple. There was no voluntary attrition at the clinic, but seven women were excluded for various unforeseen reasons. The timing of recruitment and advertising locations needed improvement. A number of variables that emerged for tracking included number of fetuses, experience with infertility procedures; previous chorionic villus sampling; source of genetic counseling; process of decision to proceed with amniocentesis; perceived risk for genetic abnormalities; and planned response to amniocentesis results.

In addition, there was attrition with the final SUDS responses and SPRAS questionnaire two weeks after the amniocentesis that affected sample size and

consequently the assumption of normal distribution. To assume a normal distribution, a sample size of 30 was the objective. Based on the pilot study's findings to estimate a proportion (p) within a five percent accuracy (d) with at least 90 percent confidence (where $n=\{z/(2d)]^2$), an appropriate sample size for a larger study is 271 participants in each group (Biles, 1995). In the pilot study, attrition was just over 20 percent in that seven women did not complete the study. Therefore, approximately 336 women should be enrolled in each group [271+(271x 0.20)] for the larger study.

Thirdly, potential confounding variables were identified at the onset of the study, tracked throughout the study, and analyzed using a Pearson chi-squared crossover analysis. Those variables that showed or approached significance need to be addressed for success of a larger study. Possible extraneous variables included the diagnostic room where the amniocentesis was performed, the ultrasonographer technician and her/his techniques, and the perinatologist and his/her techniques. Although it was proposed that only one perinatologist perform the amniocentesis for all the participants in the study, constraints in scheduling, unplanned events, and the presence of students occurred during the study. As a result, the assigned perinatalogist completed 43.3 percent of the procedures and 56.7 percent were performed by another female perinatologist (26.7 percent), a male perinatologist (23.3 percent), and a male resident (6.7 percent).

Efforts were concentrated to ensure standardized study information was provided and interactions with the therapists were minimized. Unexpected variables were identified and tracked as the study was executed. Several events occurred during the execution of the study that may have influenced the findings such as performance of one

participant's amniocentesis before the full ultrasound was completed; the need for another amniocentesis needle insertion; varied waiting time between all procedural points in the study for each participant; the opportunity to empty the bladder prior to a SUDS response; source of and information provided at genetic counseling, genetic counseling performed between procedural points; and the knowledge of amniocentesis results prior to the final SUDS response.

If a Reiki therapy was effective, it was anticipated that there would be a dramatic decrease in the SUDS response for the Reiki group whereas the SUDS responses would remain the same or actually increase for those in the control group. It was also anticipated that there would be a slight decrease in SUDS responses for the placebo group if the participants believed that they received the true Reiki therapy. Obtaining the participants opinion as to which group they were assigned to would assist in determining whether a placebo effect had occurred.

The Reiki and placebo treatment was standardized for each participant. In practice, a Reiki treatment is at least 60 minutes, incorporates many more hand positions, and is individualized to a recipient's needs. It is worthwhile to assess whether a full Reiki treatment would influence the effect size for a larger study. In addition, implementing a Reiki treatment at increasing or high anxiety levels points of the procedure may be evaluated for future study.

The interview determining the stimulus for the change in SUDS response provided depth to the study's findings. In addition, it was evaluated that the timing for asking the women for their SUDS responses immediately after removal of the amniocentesis needle (PP5) was too soon. This is a point to address with the larger

study because several women identified the need for more time for their anxiety level to decrease at this procedural point.

All of the attrition occurred two weeks following the amniocentesis when the investigator attempted to obtain the final SUDS response and post-treatment SPRAS questionnaire. It is recommended that the long-term follow up not be included in the larger study. The direct effects of Reiki should be investigated first. Overall, the findings have several implications to the nursing discipline, clinically and empirically.

Nursing Implications

The pilot study contributes to the growing empirical evidence investigating the efficacy of Reiki as a viable option for reducing anxiety in pregnant women. A third of the participants had the nurse as the primary source for support; thus nurses hold a key position in promoting comfort for the pregnant women experiencing an amniocentesis. The less anxiety a woman experiences, the more likely for an optimal outcome. Support can be informational, instrumental, and/or emotional. The findings from the pilot study described the course of anxiety associated with an amniocentesis from arrival until departure of the clinic. Nurses acquire this knowledge, recognize the need in practice, and implement anxiety-reducing measures at the rising and highest point of anxiety. Nurses can assume a lead role in comforting pregnant women rather than waiting for the woman to initiate request for support. Nurses may decide that Reiki is an option, but simply touching the woman may also have beneficial effects. Nurses are provided with empirical data to decide whether Reiki is a therapy worth acquiring for personal or clinical implementation.

In addition, increased awareness regarding the stimulus for the anxiety enables nurses to assess the feelings of the women and provide appropriate support and care wholistically. The SUDS scale is a useful tool that can be learned and implemented in practice to improve communication between the woman and nurse. The qualitative data led to suggestions for the clinic that would assist in minimizing the anxiety level of women arriving for an amniocentesis. Providing procedural information was emphasized such as explaining, in detail, what happens from arrival until departure from the clinic, the reason for extended waiting times, and possible causes for changes in procedure, but sensory detail is also an important element to include. Furthermore, having women wait in a quiet area removed from the clinic may assist in decreasing anxiety levels.

A woman's anxiety level elevates before, during, and even after an amniocentesis, and nurses are in a position to help the woman manage these alarming thoughts and feelings. The study supported the feasibility and acceptability of a larger randomized clinical trial that will provide scientific evidence about the efficacy of Reiki. Evidence obtained by carefully designed scientific research will enable nurses to provide information to pregnant women about the effectiveness of Reiki in order to make informed decisions whether or not it is an optional intervention for reducing anxiety during pregnancy. The findings of the pilot study will provide insight in an area currently neglected in scientific research, stimulate further research questions, and empirical evidence for promoting comfort in nursing practice. With continuing research, nurses will respond more appropriately to client needs and provide support physically, psychologically, emotionally, and spiritually.

The nurse, by virtue of providing continuous and comprehensive psychosocial, physical, and physiological care throughout the maternity cycle, is in a unique position to recognize and assess maternal anxiety. Expertise in nursing is based on the development of theoretical knowledge and clinical experience. The advancement of nursing practice and development of nursing science depends on well-designed and executed investigations. Complementary health therapies are a concern for all populations and have implications for all health disciplines. Collaborating with other disciplines and working with the community, Reiki, if effective, can become a viable, safe, intervention for relieving the anxiety in women undergoing amniocentesis.

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APPENDIX A

Literature Review

The online search in the databases CINAHL (1982 - August 1997), MEDLINE (1993 - October 1997), and EMBASE (1988 - October 1997) was the primary technique for retrieving journal articles pertinent to this integrative literature review. The key words in all three databases were Reiki, alternative therapy, complementary therapy, Chinese medicine, Japanese medicine, amniocentesis, prenatal diagnosis, and anxiety. The exclusion criterion for this review was no mention of Reiki. Only one thesis investigation was obtained and is included in this review. In addition to the computer search, the ancestry approach of tracking citations from one study to another (Cooper, 1982) and a manual search of the journal *Annual Review of Nursing Research* were also implemented to access relevant articles. An analysis of the content, context, biases, and methodology of each article was completed. The literature review is discussed under the following headings: amniocentesis, amniocentesis and anxiety, complementary therapy, and Reiki.

Amniocentesis

Amniocentesis is a sterile, invasive prenatal diagnostic procedure performed on pregnant women between 15 and 20 weeks gestation to detect genetic chromosomal abnormalities. It has been practiced since the 1970s in North America (Green & Statham, 1993; Ridings & Cadle, 1993; Wright 1994). The procedure takes approximately 20 minutes to complete and includes an ultrasound to confirm gestational age, identify any obvious malformations, and accurately locate the fetus, placenta, and best source of amniotic fluid (Ridings & Cadle, 1993; Wilcox, 1994). The abdomen is

cleansed, topical anesthetic is applied, and a 20 to 22 gauge needle is inserted and guided with ultransongraphy into the uterus to collect amniotic fluid. Approximately 20 to 25 milliliters of amniotic fluid containing fetal cells is aspirated which takes approximately the same amount of time as a routine blood sample, and about the same amount of physical discomfort (Wilcox, 1994). The sample of amniotic fluid is cultured for 3 to 4 weeks at which time a chromosomal analysis is performed to examine amniotic protein concentrations, specific gene products, and cellular deoxynucleic amnio acids. Subsequently, specific chromosomal abnormalities can be detected (Green & Statham, 1993; Wilcox, 1994).

Amniocentesis has been established as a reliable, cost-effective, safe procedure that has been practiced extensively for antenatal diagnosis. Complications are inherent in any invasive procedure (Jones & Headrick, 1994; Wright, 1994). Procedural risks to the fetus are rare but include respiratory distress syndrome, pneumonia, and bilateral middle ear impendence abnormalities (Finegan et al., 1990; Green & Statham, 1993; Turnbull, 1984; Wilcox et al., 1993; Wright, 1994). Amniotic fluid leak, vaginal spotting, significant cramping, or infections are rare complications (less than 0.5 percent) (Ridings & Cadle; Wright, 1994). The main risk of amniocentesis is spontaneous abortion (0.25 to 1.0 percent of all cases) (D'Alton & DeCherney, 1993; Jones & Headrick, 1992; Ridings & Cadle; Wilcox, 1994).

In Canada it is standard practice that women 35 years or older be offered the option of an amniocentesis (Johnson & Summers, 1994). The rationale for choosing age 35 is that the probability of a miscarriage as a consequence of the amniocentesis procedure is lower than the probability of delivering a child affected with a genetic

chromosomal abnormality (Green & Statham, 1993; Johnson & Summers, 1994; Wright, 1994). In addition to advanced maternal age, indications for an amniocentesis are parents who belong to a high-risk cultural group; possess a chromosomal disorder, balanced translocation, or genetic disease; or have a child or close relative that has a neural tube defect (Ridings & Cadle, 1993).

There are numerous descriptive articles that describe the technical aspects and risks of amniocentesis (Baumann & McFarlin, 1994; Green & Statham, 1993; Johnson & Summers, 1994; Jones, 1994; Ridings & Cadle, 1993; Wilcox et al., 1993; Wright, 1994). Several authors have compared the outcomes of amniocentesis to various other prenatal diagnostic tests such as chorionic villi sampling (CVS), early amniocentesis (Green & Statham, 1993; Nicolaides, de Lourdes Brizot, Patel, & Snijders, 1996), and combinations of maternal serum alpha fetoprotein with human chorionic gonadotrophin and unconjugated estriol (Johnson & Summers, 1994).

Research studies have been completed to identify the determinants of deciding to proceed with prenatal diagnostic testing. Julian-Reynier and associates (1993) surveyed and interviewed a large representative sample of women in Southern France to explore the degree to which sociodemographic, cultural, and reproductive characteristics influence the acceptance rate of amniocentesis. The 180-item questionnaire was mostly closed-ended questions, and construct and content validity were not reported. Participants were women who had recently given birth to a normal, live baby in larger hospitals. A 78 percent acceptability rate for amniocentesis was reported if the risk of having a child with Down's syndrome was only one percent. These findings are comparable to the 75 percent rate reported by Wald and associates (1992).

Women were willing to accept an amniocentesis if they were of advanced age, spoke only French, had no plans for or were uncertain about another pregnancy, had information about amniocentesis in the first trimester, supported induced abortion, were acquainted with a handicapped child, and discussed the possibility of having a handicapped child with their partners. Lesser acceptability depended on religious practices. There was a 76 percent refusal rate for a future amniocentesis because the women believed their next child would be normal as well. Surprisingly, the risk of fetal loss or a previous miscarriage was not seen to significantly influence the decision to have an amniocentesis. This contradicts the findings of other researchers (Dixon, et al., 1981).

One research group used the Health Belief Model to evaluate the predictive decision-making process of women having an amniocentesis due to advanced maternal age (French et al., 1992). The sample was predominately white, well-educated women under the care of a private physician in the United States. There were three groups of women (N=96) those that agreed, refused and were undecided about having an amniocentesis. The researchers concluded that the benefits of amniocentesis, the low risk of harm to the fetus, knowledge of whether the child was affected, and the provision of options for continuing or terminating the pregnancy all significantly influenced the decision to have an amniocentesis. Perceived susceptibility, seriousness, and benefits were analyzed using MANOVA, and benefit was the only statistically significant predictor of the decision to proceed with an amniocentesis. There was no relationship between knowledge and the decision to have an amniocentesis.

Burke and Kolker (1993) identified the typical demographic profile of couples about to experience prenatal diagnostic testing. Comparisons of the attitudes and experiences of women undergoing an amniocentesis or CVS was examined using in-depth interviews (N=44). Description of the sample omitted parity of the women, previous experience with an amniocentesis, religion, and experience with an abortion, which may have influenced the study's findings. In comparison to the CVS group, the amniocentesis group reported a higher level of commitment to the pregnancy, but held a state of "*tentative pregnancy*", where the emotional and physical contributions of the pregnancy were withheld until the prenatal diagnostic test results were final. Other researchers have reported this (Hodge, 1989; Rothman, 1993).

In addition, members in the amniocentesis group reported feelings of apprehension and overwhelming fear related to the procedure. Some reported no pain, whereas others described sensations such as "a bolt of lightning" (p.196). Almost all the participants who received amniocentesis experienced symptoms of anxiety while waiting four weeks to receive the results. They believed amniocentesis to be psychologically expensive because of the threat of a possible abortion.

Kolker and Burke (1993) surveyed and interviewed a convenience sample of 120 clinic patients and several genetic counselors from Washington and San Diego to examine the genetic and procedural risk perceptions of women who had an amniocentesis compared to women who had CVS. The CVS group had a higher level of education and rated their genetic risk, procedural risk to themselves, and procedural risk to their fetus as low. The amniocentesis group also viewed genetic risk as low, but was seven times more likely to view a very high procedural risk to the fetuses and three

times more likely to themselves. The researchers concluded that there is some difficulty applying abstract odds to immediate situations. Overall, the decision to have prenatal diagnostic testing was reported as not a simple rational process, but rather "socially constructed in accordance with the client's experiences, needs, and meanings" (p.53).

In summary, all the studies reviewed involved nonrandom participant selection with nonequivalent groups that lacked homogeneity. All the researchers in this review lacked a stated effect size and power for their own study. The majority of data collection occurred retrospectively with the use of questionnaires and/or interviews, but the analysis techniques of qualitative data were absent in a majority of articles as well as content and construct validity of the questionnaires implemented. The main topics researched compared the outcomes of amniocentesis with other prenatal diagnostic testing, the decision making process of women to proceed with an amniocentesis, and the perception of risks associated with amniocentesis.

Amniocentesis and Anxiety

Anxiety in pregnancy is common and many investigators have found that pregnant women are less anxious in the second trimester when compared to the first and third (Hanford, 1968; Lubin, Gardener, & Roth, 1975; Sjögren and Uddenberg, 1990). Amniocentesis occurs during the time period when anxiety levels should be lower. Many researchers have explored the experience of women having prenatal diagnostic tests, focusing on the psychological aspects or distress associated with the diagnostic exam. This portion of the literature review includes studies related to anxiety rather than stress. Definitions of anxiety varied among researchers and are usually defined by the instruments and methods used in the study.

Amniocentesis has been shown to be associated with fear; thus transient anxiety is unavoidable in the women and couples who experience amniocentesis (Johnson & Summers, 1994; Wright, 1994). Evers-Kiebooms and associates (1988) reported more than 50 percent of the total sample reported feelings of stress, anxiety, nervousness, and tension. There is concern and fear about fetal injury or defects, the potential for a miscarriage, the unknown aspects of the procedure or pain, and the possibility of facing the decision to terminate the pregnancy (Dixon et al., 1981; Evers-Kiebooms, Swerts, & van den Berghe, 1988; Finley, Varner, Vinson, & Finley, 1977; McGovern, Goldberg, & Desnick, 1986; Verjaal, Leschot, & Treffers, 1982). Anticipation anxiety has been found consistently within the time period after completion of the amniocentesis and before the final results. Even after the communication of favorable test results, some women continue to feel anxious until the child is born and held in their arms (Dixon et al., 1981; Evers-Kiebooms et al., 1988; McGovern et al., 1986). The participants in the majority of the investigations have been women rather than couples.

The only Canadian study located was a randomized study comparing the anxiety levels of women having an amniocentesis (N=32) and women having CVS (N=21) at four different times using the Spielberger State-Trait Anxiety Inventory (Robinson et al, 1988). The groups were similar and the main indication for prenatal diagnostic testing was advanced maternal age with nine percent having previous chromosomal abnormalities.

The CVS group experienced a significant decrease in anxiety within the first twelve weeks of gestation while the amniocentesis group experienced a significant decrease in anxiety between 18 and 22 weeks gestation. At 22 weeks anxiety levels

were the same in the two groups. This similarity is comparable to the findings of other researchers who had their participants matched for control (Fava et al., 1982; Fava et al., 1983). The CVS group possessed significantly lower anxiety levels between 13 and 18 weeks gestation influenced by the fact that the results are known to the women whereas the women in the amniocentesis group continued to wait for the results (Robinson et al., 1988). Overall, the CVS group experienced an earlier and sustained reduction in anxiety and the amniocentesis group had consistently higher anxiety levels until they knew the results. These are similar to the findings by Spencer and Cox (1987); however the Multiple Affect Adjective Checklist was used to measure anxiety.

The majority of researchers qualitatively and/or quantitatively investigated the level of anxiety in different groups of women immediately prior to amniocentesis. Sjögren and Uddenberg (1990) compared the distress experienced by 209 women in Sweden undergoing amniocentesis for three reasons: a) greater than 37 years of age, b) predisposition to a genetic defect, and c) strong fear of having a disabled child. Analysis of the questionnaires before the amniocentesis and after receiving the results revealed that in comparison to the other two groups, the predisposition to a genetic defect group had a strong anxiety for an abnormal test result, experienced severe psychological distress that affected daily activities while awaiting the results, and felt more relieved when informed of the normal test results. The women in the advanced maternal age group showed the lowest level of distress.

There is a significant difference between groups in overall degree of anxiety in women living in Belgium (N=123) whose indication for an amniocentesis was advanced maternal age, the birth of a child with Down's syndrome or the birth of a child with a

neural tube defect (Evers-Kiebooms et al., 1988). These differences became apparent from the initial time of testing until the birth of the child. The researchers stated that none of the women possessed a high risk for an affected child, but there had been significant differences in anxiety intrasubgroup, with the advanced age group possessing the lowest anxiety level.

The investigators implemented semi-structured interviews with open-ended questions and their own categorical constructed anxiety index to gather data (Evers-Kiebooms et al., 1988). The findings revealed that more than 50 percent of the total sample stated feelings of uncertainty, stress, anxiety, nervousness and tension during the time interval between the needle puncture and communication of test results. Some of the identified sources of anxiety included the possibility of an unfavorable test result, a miscarriage, and injury to the unborn child. The three groups were statistically significant during this time interval with the Down's group experiencing the most anxiety and the neural tube defect group least reassured by the results. Two thirds of the participants were certain that the amniocentesis results were correct (Evers-Kiebooms et al., 1988).

A retrospective exploratory survey of attitudes toward and experience with CVS, amniocentesis, and dexamethasone treatment in women who were affected or already had an affected child with congenital adrenal hypoplasia was completed (Trautman, Meyer-Bahlburg, Postelnek, & New,1996). Results were women of affected children felt significantly more worry, stress and disappointment towards the unborn child and were significantly less relieved than those with non-affected children. Women in the CVS group were less worried about miscarriage or harm to the unborn child than those

in the amniocentesis group, but both groups reported discomfort and pain. Interestingly, one woman complained that the required pretest genetic counseling raised her anxiety level unnecessarily.

Women with affected children experienced more worry, stress, and disappointment waiting for and learning of the diagnostic results (Trautmen et al., 1996). Other researchers had similar findings when they investigated women's experience with amniocentesis and CVS because they were considered to have high-risk pregnancies due to advanced maternal age, genetic risk, or anxiety about birth defects (Marteau et al., 1989, 1992; Pauli, Blaser, & Herrman, 1990; Sjögren and Uddenberg, 1989; Sjögren and Uddenberg, 1990; Tunis et al., 1990). In addition, several researchers have found that there is a significant decrease in anxiety, fatigue, confusion, and depression prior to and after prenatal diagnostic testing (Pauli et al. 1990; Tunis et al. 1990). Sjögren and Uddenberg's (1989) reported that anxiety levels associated with prenatal diagnostic tests and results are higher for women who had amniocentesis than for those who had CVS. This is possibly due to greater feelings of attachment or bonding with the unborn child.

The level and characteristics of parental anxiety were evaluated (N=53 couples) along with an evaluation of perceived genetic risk as a function of true genetic risk (Evans, Bottoms, Critchfield, Greb, & La Ferla, 1990). Perception of genetic risk was similar within couples, but was not correlated with state or trait anxiety. A follow up study was completed to compare the couples' (N=69) perception of genetic risk and associated anxiety after receiving counseling because of abnormal maternal serum alpha feto-protein or being greater than 35 years of age (Evans, Bottoms, Carlucci, Grant,

Belsky, Solyom, Quigg, & LaFerla, 1988). Clients possessing abnormal maternal serum alpha feto-protein experienced higher state anxiety.

Self-reported mood states in women experiencing an amniocentesis and women experiencing CVS due to advanced maternal age were compared (Tunis, Golbus, Copeland, Fine, Rosinsky, & Seely, 1990). The purpose of the study was to characterize non-situation specific patterns of mood with the six subscales in the Profile of Mood States instrument. Data were collected before and after the three week waiting period for amniocentesis results so that findings reflect "more lasting or representative mood states" (p. 197). The instrument was used at approximately the same gestational age for all women. Women in both groups reported a significant decrease in tension and anxiety two weeks after they received their results.

In summary, there is a complexity in comparing studies because instruments to measure anxiety vary. Many researchers failed to report the psychometric properties of the questionnaires thus it is difficult to critique and compare findings. The majority of the investigations were conducted in the United States although studies were completed in Canada, Sweden and Belgium. A majority of quantitative studies were prospective, had a small sample size, nonequivalent groups, and did not report effect. Within these studies, several researchers implemented qualitative techniques, but no qualitative research studies conducted to investigate anxiety associated with amniocentesis were found.

It is apparent that anxiety is unavoidable with amniocentesis and significantly affected by time. There are various common sources for the anxiety, and the anxiety differs between as well as within groups of women. Women having an amniocentesis

for advanced maternal age possess lower levels of anxiety or distress than any other group of women. However, the anxiety level in women about to have an amniocentesis is higher than in women who will have CVS, and there will be some women who will continue to be anxious until the child is born. The problem of elevated maternal anxiety associated with amniocentesis is well documented, and the only identified intervention to reduce this state of anxiety is genetic counseling. Consequently, reducing maternal anxiety associated with amniocentesis through the use of Reiki is proposed.

Genetic counseling

Many researchers have emphasized that genetic counseling should occur prior to making a decision about prenatal diagnostic testing. Counseling the family undergoing amniocentesis is a focus for research so that who should provide the counseling, when to counsel, who to counsel, how to counsel, and who should make the decision can be evaluated (Wilcox et al., 1993). In addition, the emotional reaction and needs of individual women will vary and must be recognized (Trautman, Meyer-Bahlburg, Postelner & New, 1996). There is a need to identify the goals of genetic counseling, the information communicated in the sessions, and the availability of genetic counseling to women at risk (Johnson & Summers, 1994; Phillips & Elias, 1993; Riding & Cadle, 1993; Wright, 1994).

The effect of genetic counseling on anxiety levels between two groups of women undergoing amniocentesis because of advanced maternal age and low maternal serum alpha feto-protein was evaluated (Abuelo, Hopmann, Barsel-Bowers & Goldstein, 1991). The groups of women were of different gestational ages, but had similar risks for chromosomal abnormalities and similar genetic counseling. They completed the same

questionnaire before counseling, after counseling and after the results were known. Post counseling anxiety levels slightly decreased, but anxiety levels declined after the test results were known. Overall, the two groups differed significantly in anxiety level; however, there was a difference between groups regarding the time interval between the counseling and the amniocentesis. The advanced maternal age group received counseling one to three weeks before the amniocentesis while the alpha feto-protein group experienced both on the same day (Abuelo et al, 1991).

Another group of researchers investigated effectiveness of genetic counseling on the anxiety levels of the women and their partners using the State-Trait Anxiety Inventory (STAI) to compare pre-counseling and post-counseling scores with a similar control group (Keenan, Basso, Goldkrand, & Butler, 1991). All 52 participants had low alpha feto-protein levels and required an amniocentesis while the 25 control group participants were low risk pregnant women. The control group possessed a significantly lower anxiety level before and after genetic counseling. In the other group, the pre-counseling anxiety levels of the women were higher than their partner and there was a significant decrease in the women's anxiety scores after genetic counseling whereas the partners did not experience a significant decrease. This finding contradicts another study where the heightened anxiety of women with elevated serum alpha-fetoprotein levels was not alleviated by genetic counseling before definitive testing in another study (Burton, Dillard, & Clark, 1985). The post-counseling state anxiety scores were the same as those found in other studies, but the pre-counseling scores of the participants were higher in the Keenan and associates (1991) study thus contributing to a significant decline in anxiety.

In summary, there are few and contradicting research studies where the effectiveness of genetic counseling in reducing maternal anxiety has been investigated. There are numerous interventions that are reported to be effective in promoting relaxation and reducing anxiety; however, women in this developmental state are unique. A wholistic approach to their anxiety and a simple, noninvasive technique is needed. A potentially promising popular complementary therapy, Reiki, encompasses all of the above.

Complementary Therapy

In 1994, 15 percent of Canadian adults (3.3 million people) reported using a form of complementary therapy within the last year (Statistics Canada, 1995b). The 1992 Canadian Health Monitor survey of 2,728 men and women over 15 years of age showed that the highest use of complementary therapies for both genders was in the 25 to 44 age group, and it was more common for women to use complementary therapy interventions (Alberta Heritage Foundation for Medical Research, 1997). The presence of a chronic disease increases the likelihood of using complementary therapies, but the survey reported that 10 percent of people without a chronic condition also turned to complementary therapies. Owen (1995) stated general reasons for seeking complementary therapies. They include adverse side effects of conventional treatments, skepticism about allopathic medicine, desire to have more choice and control over health, and the insufficiencies of the health care system to accommodate greater numbers of clients in an era of scarce resources.

The results of a Canadian survey of general physicians showed that their patients requested information regarding the nature, validity, practitioner, and

availability of various types of complementary therapy interventions and that physicians questioned the regulations and legislation of specific interventions (Alberta Heritage Foundation for Medical Research, 1997). A lack of available scientific evidence evaluating the efficacy and effectiveness of complementary therapy interventions emerged as the primary concern for physicians.

Rigorous research is required to support or disprove effects attributed to hands-on healing. The majority of published research concerning hand-mediated energetic healing modalities is on Therapeutic Touch. It has been assumed that all hand-mediated energetic healing techniques are similar, thus research on Therapeutic Touch is generalized to all other approaches. Well-developed clinical trials of individual therapies are required before such an assumption can be supported or rejected.

Research on complementary therapies is being conducted to determine whether there is scientific evidence of their efficacy. The National Institutes of Health, Office of Alternative Medicine, provides general guidelines and research of complementary therapies (Slagle, 1996). Double-blind study designs have been well executed and have provided statistically significant data so that the effectiveness of hands-on healing, particularly Therapeutic Touch could be demonstrated (Fawcett, 1995; Sayre-Adams & Wright). A sound scientific explanation for, or good measures of, the type of energy that is used in 'healing energy' has not been reported, and lack of a theoretical basis for healing touch therapy modalities hinders their acceptance (McCormack, 1991).

Definitions of Complementary Therapy

Complementary therapy has various definitions across disciplines because it encompasses a broad spectrum of practices and beliefs. The World Health

Organization's definition is all forms of health care provision which usually lie outside the official health care sector (McCormack, 1991). Complementary therapy has been viewed as lacking a common ideology and professional or legal status. Furthermore, complementary therapy has been characterized as failing to follow the biomedical model and conform to conventional medical standards (Aakster, 1986; Aldridge, 1990; Boisset & Fitzcharles, 1994; Eisenberg et al., 1993; Murray & Rubel, 1992; Sutherland & Verhoef, 1994).

Similarly, medical sociologists and anthropologists view complementary therapies as those practices failing to correspond to the beliefs and standards of the dominant group of medical practitioners. However, these therapies are generally accepted and recognized as a wholistic approach to maintain and promote health and cure illness (Aaskster, 1986; Gevitz, 1988). Social scientists perceive complementary therapies as a component of the folk sector of the health care system (Kleinman, 1981).

In contrast, nursing definitions of complementary therapy are emerging. Descriptions of various complementary therapies implemented by nurses are found in nursing literature, but there is no single definition. These complementary therapies share a common theme of providing a person with wholistic care where a balance among mind, body, and spirit is sought (Howell, 1994; Owens & Ehrenreich, 1991; Russell, 1994; Smith, Airey, & Salmond, 1990; Stephens, 1993; Wright, 1987).

Touch as a Treatment Modality

Touching is the earliest form of communication and has been a form of hands on healing for several thousand years in numerous cultures (McCormack, 1991). In the Eastern view, the body is a three-dimensional whole with the physical, mental,

emotional, and spiritual aspects in harmony (McCormack, 1991). Touch is a multifaceted and major phenomenon for research and elicits a profound impact on health and well being. Researchers have investigated the meanings, types, qualities, characteristics, patterns, and thresholds of touch, as well as the developmental, interpersonal, and psychological responses to touch (Weiss, 1988). There are conflicting findings in studies of the effects of touch on anxiety, suggesting that the meaning of and response to touch is influenced by the current social context (Weiss, 1988). The foundation for therapeutic interaction is based on the natural human potential to reach out in compassion and empathy expressed by the use of touch (McCormack, 1991)

Universal Energy

Physical law states that energy cannot be created or destroyed, but is able to change form (McCormack, 1991). There is a belief that a life form of energy originating from the earth, cosmos, or universe can be used for healing. The phenomenon of a universal or vital energy that connects everything has been traced as early as 5000 BC in India, but it is termed differently among cultures. It is called *rlun* in Tibet, *prana* in India; *ch'i* or *qi* in China, *kei* in Japan, and *mana* in Hawaii. Traditional healing occurs through various hand-mediated healing modalities within the many cultures of the world, all of which are based on the belief in a universal healing energy (e.g. Hindu pranic healing, Eastern qigong, Hawaiian kahuna, and Native American medicine) (Slater, 1996). These energetic strategies are credited with relieving physical and emotional distress and are viewed as a source of healing (Micozzi, 1996). Descriptions of quantum and electromagnetic fields in the Western scientific world are

similar to descriptions of *prana, ki,* and *mana,* but possess few terms to describe and no approaches to use this energy (Slater, 1996).

Beunting (1993) presented a number of human energy field theories and claimed they offer a truly wholistic method in the care of pregnant and laboring women. These theories are more applicable to the various complementary therapies that focus on energy such as shiatsu, accupressure, accupuncture, Reiki, and Therapeutic Touch. Beunting (1993) identified the need for more descriptive research regarding energy flow patterns in pregnant and birthing women.

Reiki

Touch therapy or *healing touch* is a generic term for the laying on of hands. There are many different methods but whatever the actual technique, the basic principle underlying each method is the same: "the body, mind, and spirit are a unified entity, and by healing the body, one frees the mind and spirit of conflicts, distress, and illness" (Rasco, 1994, p. 118). Reiki is one complementary touch therapy that is growing in popularity. There are a number of volunteer associations, including the Canadian Reiki Association, the American Reiki Master Association, the Radiance Technique Association International, and the Reiki Alliance (Rand, 19** ; Rasco, 1994). The Reiki Alliance is an international organization with a membership of 515 Reiki practitioners in 25 states and 8 countries in 1993, and the American Reiki Master Association consists of members from North America, Central America, the Netherlands and Switzerland and includes 31 Reiki Masters (Rasco, 1994).

History of Reiki

Reiki, or the Usui system of natural healing, is a method of "aura balancing and the laying on of hands" (Rasco, 1994, p. 220). It is a type of field work founded on energy. Reiki combines two Japanese words. *Rei* is generally interpreted as cosmic, universal energy present everywhere; or free passage; and *ki* is non-physical energy that is a fundamental life force that flows through all living beings (Baginski & Sharamon, 1988; Rand, 19 ; Rasco, 1994). Reiki is a system founded in the nineteenth century by Doctor Mikao Usui, who was both a Japanese Christian minister and a Zen Buddhist monk. He possessed a doctorate in theology from the University of Chicago. Usui discovered the essence of healing in the Buddist sutras and the series of symbols that enabled him to access and channel healing energy (Baginski & Sharamon, 1988; Furumoto, 1985; Ray, 1985). It is believed that Reiki is an ancient type of Tibetan healing art rather than a religion, and proper training is required to perform Reiki effectively.

Three Levels of Reiki

Reiki is performed by trained and certified Reiki practitioners who have completed a series of initiations or attunements that connects practitioners to the universal life energy and allow them to become the conduit for its transmission (Wetzel, 1988). There are three degrees of Reiki (i.e. First Degree, Second Degree, and Master). The symbols discovered by Doctor Usui are used to open the energy channels within the initiate's body and connect it with the universal life force in order to allow for the conduction of energy required for healing (Thornton, 1991; Wetzel, 1988).

First Degree Reiki practitioners experience four of these initiations and become attuned to the universal life force. They are then taught the proper hand positions for a Reiki treatment. The practitioner must be touching the body or no more than a couple of inches away from the recipient for an effective treatment (Wetzel, 1988). Second Degree Reiki practitioners are given more attunements and are able to use symbols to execute distant healing where touching the recipient is unnecessary. This can occur when the practitioner and recipient are geographically separated (Wetzel, 1988). These practitioners are also taught the symbols and techniques for working on subconscious levels (Thornton, 1991). Reiki Masters are independently able to teach Reiki and perform the attunements. In order to train to become a Master, commitment and dedication to Reiki as a healing art must be evident (Wetzel, 1988).

A Reiki Treatment

Reiki refers to "spirit energy...that flows from the universe into the crown chakra, the throat chakra, and the heart chakra, then out the arms and hands" (Rasco, 1994, p. 220). The traditional Eastern definition of *chakra* is one of the seven "force centers through which vital energy flows from one body to another" (McCormack, 1991, p. 50). Reiki practitioners gently rest their hands on specific areas of the body with the intent of projecting universal energy directly into the recipient's body through the Reiki practitioner. Reiki practitioners believe that Reiki helps to rebalance the universal life force energy in the body and enhance the body's natural ability to heal itself (Baginski & Sharamon, 1988; Furumoto, 1985; Wetzel, 1988). The energy is self-dispersing, meaning that it flows naturally into deficient areas (Canadian Reiki Association, N.D.). The Reiki energy is independent and "communicates with the client's Higher Self and

uses this information to decide where to go and what to do" (Rand, 19**, p.). Consequently, it is unnecessary for the practitioner to direct Reiki energy.

Reiki is a noninvasive technique that is reported to induce relaxation, reduce pain and stress, increase vitality and assist the body's natural healing abilities and sense of balance effectively (Canadian Reiki Association, N.D.). A Reiki treatment consists of a certified Reiki practitioner physically touching the recipient by placing his/her hands in 18 various hand positions that cover the major organ systems of the body. Recipients are fully clothed and have the option of covering their bodies with a sheet or blanket. The treatment begins with the recipient lying on his/her back and the Reiki practitioner places his/her hands in 10 various positions covering the head and torso. The recipient then lies on his/her stomach or either side and eight additional hand positions are performed covering the back, hip area, and the feet. A complete Reiki treatment takes approximately 1.25 hours.

There is no proposed discussion regarding the mechanism of action of Reiki. Reiki practitioners believe that human beings are comprised of multiple layers of energy, with the physical body possessing the densest area. All the energy frequencies from the physiological, psychological, emotional, and spiritual domains are in harmony during optimal health, whereas a disruption in the frequencies can result in discomfort or illness. Subtle vibration in the frequencies can occur in the emotional field which influences the body's harmonic equilibrium (Seaward, 1994). Proponents of Reiki hypothesize that Reiki reestablishes an energy balance in areas of the body experiencing disease and discomfort, thus promoting healing, reducing pain, and increasing quality of life (Furumoto, 1985; Olson & Hanson, 1997; Thornton, 1991; Wirth et al., 1993).

Reiki Treatment Outcome

Reiki is viewed as a life energy that provides a person with the strength and courage to make choices and become an active participant in the changing world (Furumoto, 1985). Baginski and Sharamon (1988) have listed the various direct effects of Reiki: (a) supports the body's natural ability to heal itself, (b) vitalizes both body and soul, (c) re-establishes spiritual equilibrium and mental well-being, (d) functions on all levels (i.e. mental, spiritual, physical, or emotional), (e) balances the body's energies, (f) loosens up blocked energy and promotes a state of total relaxation, (g) cleanses the body of poisons, (h) adjusts itself according to the needs of the recipient, (i) is an extremely pleasant, holistic method of healing. Reiki is a well-recognized and established complementary healing method with promising clinical applications and preventative self-care method that continues to be utilized by a growing number of people despite a paucity of experimental studies to support its efficacy (Wirth, Brenlan, Levine, & Rodriguez, 1993).

Reiki Investigations

Evaluative research studies on the efficacy of Reiki had not been found, but there are a growing number of reports in the lay and non-peer-reviewed literature on the positive benefits of Reiki. Reiki has been identified in anecdotal articles as a beneficial simple healing intervention that can be used anywhere and anytime. Those identified as having benefited from Reiki are patients diagnosed with cancer, acquired immunodeficiency syndrome, or human immunodeficiency virus (Tattam, 1994). Clients requiring occupational therapy for activities of daily living have also been helped (Behar, 1997). Recipients of Reiki have stated feeling increased calm, peace,

relaxation, security, and well being. Reductions in pain, dyspnea, and anxiety have also been reported (Bullock, 1997; Van Sell, 1996; Wirth et al., 1993). It is believed that there are no harmful effects of Reiki and that it provides the practitioner with the means to provide physical, emotional, and spiritual support (Behar, 1997; Bullock, 1997; Tattam, 1994; Van Sell, 1996).

No trials evaluating the usefulness of Reiki in the management of anxiety have been reported, and only four scientific research studies were located. Olson and Hanson (1997) conducted a pilot study (N=20) to explore the usefulness of Reiki as an adjunct to opioid therapy in the management of chronic pain in community-living individuals. Each participant had one Reiki treatment, and 85 percent experienced a reduction in pain. The participants identified different sites, sources, and time experience of pain and all but one participant were currently using medications or another complementary intervention. It was identified that the music used during Reiki, the lack of a control or placebo group, and the lack of blinding may have influenced the results (Olson & Hanson, 1997).

An exploratory, randomized, within-subject, crossover pilot study with a treatment and control group was conducted to evaluate the combination effect of Therapeutic Touch, Reiki, LeShan, and Qigong therapy on hematological measures in healthy participants (Wirth, Chang, Eidelman, & Paxton, 1996). Only the participants and the phlebotomist were blinded to all the complementary healing therapies present and the healing nature of the study. There were a number of confounding variables: measurement variability within participants; individual fluctuations in blood analyte levels; participants who were meditators, students, or patients of the Qigong

practitioner; placebo effects; experimenter effects; multiple healing modalities; and effect of diet and exercise on certain hematological variables. Consequently, these methodological problems in the design render the findings uninterpretable.

The combined effect of Reiki and LeShan healing from a distance on postoperative iatrogenic pain in participants who experienced unilateral extraction of impacted lower third molar teeth was evaluated (Wirth et al., 1993). The randomized, double blind, within subject, crossover design had participants serve as their own control (N=21). Variables were controlled to produce similar to identical conditions. The two operations and surgical trauma for each subject were not significantly different. A Visual Analogue Scale and a five point Pain Relief Scale were used but psychometric properties were not reported. A statistically significant difference in the level of pain intensity and degree of pain relief hour four to nine postoperatively was reported between the treatment and control groups. The researchers concluded that a combination of Reiki and LeShan healing complemented traditional medical therapy effectively for postoperative pain.

Thornton (1991) examined the effects of Reiki on anxiety, sense of personal power, and sense of well being in healthy female nursing students using an unblinded comparison design. A comparison of pre-intervention and post-intervention scores between 22 participants in the Reiki treatment group and 20 participants in the placebo Reiki group showed no significant difference in the above outcome measures. The State-Trait Anxiety Inventory, Barret Power as Knowing Participation in Change Tool, and a developed treatment assessment tool were used. Analysis of variance was

implemented on all the variables as well as post hoc t-tests; however, due to the small sample size this is inappropriate.

The Reiki practitioner assessed her intensity of energy flow, degree of centeredness, degree of connectedness, sense of well-being at the start and end of each treatment. There was no mention of the placebo Reiki practitioner's involvement in data collection. Questionnaires and post-treatment interviews with the participants and Reiki practitioner revealed that all had reported feelings of warmth, relaxation, drowsiness, and coldness; a release of tension; and a dreamlike sense of consciousness. In addition, the Reiki group participants reported sensations of tingling, floating, and oneness with the practitioner and experienced a life review and complete emptying of the mind.

In the Reiki group a few significant correlations were found. There was a significant correlation found between the participants' perceived degree of healing and the Reiki practitioner's perception of intensity energy flow ($r=0.45$, $p<0.05$). Openness, measured on a visual analogue scale, was also significantly correlated to the participants' perception of healing ($r=0.55$, $p<0.01$). Finally, openness was significantly correlated to post treatment State Anxiety Inventory scores ($r=-0.67$, $p<0.001$). There was no significant difference between groups. The State Trait Anxiety Inventory showed a floor effect whereas the Barrett Power showed a ceiling effect. The anxiety in both groups was significantly decreased, however, Thornton (1991) suggested that a healing connection had unconsciously occurred between the researcher assistant and the participants.

In summary, these early investigations of Reiki are exploratory with small sample sizes and no reported effect size or power in the study. Each researcher

attempted to measure the effects of Reiki using self-reported instruments. One implemented quantitative hematological outcome measures, one implemented qualitative methods, and one had a placebo intervention. Current investigations of Reiki to date are not strong; however, Wirth and associates (1993) conducted the only well-designed study and more investigations of this caliber are needed.

APPENDIX B

Subjective Unit of Disturbance Scale Response Data Collection Record

Title of Project:
The Effect of Reiki Therapy on Maternal Anxiety Associated with Amniocentesis

DATE: _____ CODE NUMBER: _____

Diagnostic Room Number: _____

Ultrasonography Technician: _____

Perinatologist performing amniocentesis_____

When the participant arrives at the Perinatal Clinic. Prior to escort to room. Pre-intervention measure. Procedural Point 1: _____

Prior to amniocentesis. Participant is in perinatal clinic room. Post-intervention measure. Procedural Point 2: _____

Immediately after completion of the ultrasound. Immediately after the gel is wiped off the abdomen. Procedural Point 3: _____

Prior to insertion of the needle. Perinatalogist has cleansed area and instruments are prepared. Procedural Point 4: _____

Immediately after removal of the needle. Disinfectant is wiped off and instrument tray is taken away. Procedural Point 5: _____

After the entire amniocentesis procedure is completed. Participant is able to leave. Interview to take place. Procedural Point 6: _____

INTERVIEW----------

Two weeks after the participant's amniocentesis, but prior to known diagnostic results Procedural Point 7:

Lowest number_____

Highest number_____

APPENDIX C

Reiki Information Letter

Title of Project:
The Effect of Reiki Therapy on Maternal Anxiety Associated with Amniocentesis

What is Reiki?
Reiki, pronounced "ray-kee", is a Japanese word meaning life energy. Reiki is a touch therapy that has been practiced since the 1800s. Reiki is a Japanese art of healing that involves the transfer of energy. It is believed that health problems are caused by energy imbalances in the body. Reiki helps to achieve a balance by directing universal energy to a body to promote a healing effect.

What happens in a Reiki treatment in this study?
In this study, you are fully clothed and offered to be covered with a blanket. A trained and certified Reiki practitioner will gently place her hands on a part of your body and leave them there for five minutes. There is no pressure applied, but there is actual physical contact between you and the practitioner.

What is a placebo Reiki treatment in this study?
A placebo Reiki treatment is the same as the Reiki treatment, but a certified Reiki practitioner does not perform it.

Reiki procedure
With you lying on your back on a massage table, the practitioner gently places her:

1st hand position:	Hands over both your eyes
2nd hand position:	Hands over the temple area of your head
3rd hand position:	Hands underneath your head
4th hand position:	Hands over your upper chest (below your collarbones and above your breasts)
5th hand position:	Hands on your stomach and lower ribs
6th hand position:	Hands under the heels of your feet

APPENDIX D

Sheehan Patient-rated Anxiety Scale

Sheehan, D.V. (1983). The Anxiety Disease. (pp. 126-127)

Title of Project:
The Effect of Reiki Therapy on Maternal Anxiety Associated with Amniocentesis

INSTRUCTIONS: Below is a list of problems and complaints that people sometimes have. Circle the number to the right that best describes how much that problem bothered or distressed you during the past six months. Mark only one number for each problem and do not skip any items

0 - Not at all 1 - A little bit 2 - Moderately 3 - Markedly 4 - Extremely

1. Lightheadedness, faintness or dizzy spells	0	1	2	3	4
2. Sensation of rubbery or "jelly" legs	0	1	2	3	4
3. Feeling off balance or unsteady as if about to fall	0	1	2	3	4
4. Difficulty in getting breath or overbreathing	0	1	2	3	4
5. Skipping or racing of the heart	0	1	2	3	4
6. Chest pain or pressure	0	1	2	3	4
7. Smothering or choking sensation or lump in the throat	0	1	2	3	4
8. Tingling or numbness in parts of the body	0	1	2	3	4
9. Hot flashes or cold chills	0	1	2	3	4
10. Nausea or stomach problems	0	1	2	3	4
11. Episodes of diarrhea	0	1	2	3	4
12. Headaches or pains in neck or head	0	1	2	3	4
13. Feeling tired, weak, and exhausted easily	0	1	2	3	4
14. Spells of increased sensitivity to sound, light or touch	0	1	2	3	4
15. Bouts of excessive sweating	0	1	2	3	4
16. Feeling that surroundings are strange, unreal, foggy, or detached	0	1	2	3	4
17. Feeling outside or detached from part or all of your body or a floating feeling	0	1	2	3	4
18. Worrying about your health too much	0	1	2	3	4
19. Feeling you are losing control or going insane	0	1	2	3	4

20. Having a fear that you are dying or that something terrible is about to happen	0	1	2	3	4
21. Shaking or trembling	0	1	2	3	4
22. Unexpected waves of depression occurring with little or no provocation	0	1	2	3	4
23. Emotions and moods going up and down a lot in response to changes around you	0	1	2	3	4
24. Being dependent on others	0	1	2	3	4
25. Having to repeat the same action in a ritual (e.g. checking, washing, counting repeatedly, when it's not really necessary)	0	1	2	3	4
26. Recurrent words or thoughts that persistently intrude on your mind and are hard to get rid of (e.g. unwanted aggressive, sexual, or poor impulse control thoughts)	0	1	2	3	4
27. Difficulty in falling asleep	0	1	2	3	4
27. Waking up in the middle of the night or restless sleep	0	1	2	3	4
29. Avoiding situations because they frighten you	0	1	2	3	4
30. Tension and inability to relax	0	1	2	3	4
31. Anxiety, nervousness, restlessness	0	1	2	3	4
32. Sudden unexpected panic spell that occur with little or no provocation (e.g. anxiety attacks with three or more of the symptoms listed above occurring together)	0	1	2	3	4
33. Sudden unexpected spells like those listed above, without full panic that occur with little or no provocation (e.g. attacks associated with only one or two symptoms)	0	1	2	3	4
34. Anxiety episodes that build up as you anticipate doing something and that are more intense than most people experience in such situations	0	1	2	3	4
35. Surges of panic that occur while you are in the phobic situation	0	1	2	3	4

APPENDIX E

Subjective Unit of Disturbance Scale Data Collecting Record

Date_____ CODE NO._____

_____	**10**
	9
	8
_____	**7**
	6
_____	**5**
	4
_____	**3**
	2
	1
_____	**0**

APPENDIX F

Subjective Unit of Disturbance Scale Training Session

Participants are informed that responding with a zero "represents feeling entirely calm, comfortable, at peace, relaxed or, in other words, experiencing no distress whatsoever" (Davis et al., 1994, p. 141). In contrast, responding with the number ten represents the worst anxiety ever experienced or imagined where you feel "extremely apprehensive, frightened, anxious, or distressed" (p.141). The participant is asked to identify experiences she would rate as a zero, three, five, seven, and ten and the primary investigator will diagram the experiences on a Subjective Unit of Disturbance line scale.

Identified Event	**10**
	9
	8
Identified Event	**7**
	6
Identified Event	**5**
	4
Identified Event	**3**
	2
	1
Identified Event	**0**

A summary of the corresponding ratings is drawn on the line scale with the identified experiences. The participant is asked to verify if this line scale correctly represents her level of anxiety at each identified event (Davis et al., 1994).

APPENDIX G

Health Research Ethics Approval

University of Alberta
Edmonton
Canada T6G 2G4

Faculty of Rehabilitation Medicine
Rehabilitation Research Centre
3-48 Corbett Hall
Director (403) 492-7856 Telephone (403) 492-2903
Fax (403) 492-1626

UNIVERSITY OF ALBERTA HEALTH SCIENCES FACULTIES, CAPITAL HEALTH AUTHORITY, AND CARITAS HEALTH GROUP

HEALTH RESEARCH ETHICS APPROVAL

Date: October 1998

Name(s) of Principal Investigator(s): Ms. Magareth Mauro

Organization(s): University of Alberta

Department: Graduate Studies; Faculty of Nursing

Project Title: The Effect of Reiki Therapy on Maternal Anxiety Associated with Amniocentesis.

The Health Research Ethics Board has reviewed the protocol for this project and found it to be acceptable within the limitations of human experimentation. The HREB has also reviewed and approved the patient information material and consent form.

The approval for the study as presented is valid for one year. It may be extended following completion of the yearly report form. Any proposed changes to the study must be submitted to the Health Research Ethics Board for approval.

Sharon Warren

Dr. Sharon Warren
Chair of the Health Research Ethics Board (B: Health Research)

File number: B-070798-NSG

APPENDIX H

Participant Information Letter

Title of Project:
The Effect of Reiki Therapy on Maternal Anxiety Associated with Amniocentesis

Primary Investigator:
Margareth Mauro, BScN., RN
Master of Nursing Candidate
Faculty of Nursing
University of Alberta
Telephone: 492-6685

Co-Investigator:
Dr. Beverley O'Brien, PhD.
Associate Professor
Faculty of Nursing
University of Alberta
Telephone: 492-8232

Purpose of the Study: The purpose of this study is to compare the effects of a Reiki treatment, a placebo Reiki treatment and no treatment on the amount of anxiety that you have before, during, and after your amniocentesis. The study is part of completing a graduate thesis.

Background: This is a pilot study. It will help us decide if we should conduct a larger study. The Reiki touch treatment may help you relax before your prenatal test. Amniocentesis is when a sample of fluid from the womb is taken to test for abnormal genes in the unborn baby. It is performed at the Perinatal Centre. Pregnant women who decide to have this test because they are over 35 years of age will be eligible to take part in the study.

Procedures: You will be asked to fill out two surveys at the start of the study. One survey is to get useful information about your past. The other is to learn how badly certain symptoms have bothered you during this pregnancy. You will be taught how to use the Subjective Unit of Disturbance Scale (SUDS). It is a scale to measure your level of anxiety. If your anxiety is ranked severe, you will be offered a referral to a psychologist Terry Davis for a complete assessment.

There are three groups in the study - Reiki treatment, placebo Reiki treatment, or no treatment. You will have an equal chance of being in one of the three groups. This will be decided fairly as in flipping a coin. You will not be told which group you are in until after the study is done.

You will be asked to arrive one hour prior to your appointment at the Perinatal Centre. You will drink the water needed for the test at this time. You will then be escorted to a quiet room. Depending on your group, you will be introduced to a practitioner or visited frequently by a staff member for short conversations. The Reiki and placebo Reiki treatment will take 30 minutes. You will be asked for your anxiety level two times prior to the test. You will be asked for your anxiety level three times while in the procedure room. You will be asked for your anxiety level after the test is completed. When you are ready to leave, you will be interviewed to describe your anxiety levels at the

different times. The interview will be tape recorded word for word so that it can be reviewed later.

Two weeks after you leave the Perinatal Center, the researcher will phone you. You will be asked what your lowest and highest anxiety level was since the test. Also, you will be asked again how badly certain symptoms have bothered you during this pregnancy. A total of two hours is needed for taking part in the study. Please phone the researcher with your questions about the study.

Benefits and Risks: Researchers do not know the effects of Reiki. If you decide to take part in the study you may feel relaxed. If you feel discomfort during the treatment, it will be stopped. The practitioner or research assistant will guide you through breathing techniques until you feel relaxed and comfortable again.

Confidentiality: Your name will not appear in any publications or discussions about the study. Instead, a code number will label all the forms. Only the researcher will have a record of who was in the study. Consent forms will be kept in a locked file cabinet. They will be destroyed five years after the study is finished. All information from the study will be kept in a separate locked file cabinet. Only the researcher and her supervisor will have access. The tapes from the interviews belong to the researcher. Written copies of the tapes will not have your name or any information that may identify you. Only the researcher and her committee will have access to the transcripts. The members of this committee will keep the information confidential. If the information from this study is looked at in the future, permission from a University Ethical Review Committee will be needed to access the information.

Freedom to Withdraw: You do not have to take part in the study if you do not want to. If you participate, you do not have to answer any questions you do not want to. You can leave the study at any time by telling the researcher. Leaving the study will not affect the care and services provided to you.

Additional Contacts: If you have any concerns about any aspect of this study, you may contact the Office of Associate Dean Research at the Faculty of Nursing, University of Alberta at 492-6763. This office has no affiliation with the study.

APPENDIX I

Written Informed Consent Form for Participation in Study

Title of Project:
The Effect of Reiki Therapy on Maternal Anxiety Associated with Amniocentesis

Primary Investigator
Margareth Mauro, BScN., RN
Master of Nursing Candidate
Faculty of Nursing
University of Alberta
Telephone: 492-6685

Co-Investigator:
Dr. Beverley O'Brien, PhD.
Associate Professor
Faculty of Nursing
University of Alberta
Telephone: 492-8232

To be completed by participant:

Do you understand that you have been asked to be in a research study?	Yes	No
Have you read and received a copy of the Participant Information Letter?	Yes	No
Have you read and received a copy of the Reiki Information Letter?	Yes	No
Have you read and received a copy of the Written Informed Consent Form?	Yes	No
Do you understand the benefits and risks involved in taking part in this research study?	Yes	No
Have you had an opportunity to ask questions and discuss this study?	Yes	No
Do you understand that you are free to refuse to participate or withdraw from the study at any time? You do not have to give a reason and it will not affect your care.	Yes	No
Has the issue of confidentiality been explained to you? Do you understand who will have access to your records?	Yes	No

Title of Project:
The Effect of Reiki Therapy on Maternal Anxiety Associated with Amniocentesis

This study was explained to me by: _____

I agree to take part in this study.

_____	_____	_____
Signature of Research Participant	Date	Witness

_____	_____
Printed Name	Printed Name

I believe that the person signing this form understands what is involved in the study and voluntarily agrees to participate.

_____	_____
Signature of Primary Investigator	Date

Ensure information letters are attached to consent form and a copy given to participant.

- -

Complete this part if you would like a summary of the study when it is done.

NAME _____

MAILING ADDRESS _____

_____

APPENDIX J

Demographic Data Questionnaire

Title of Project:
The Effect of Reiki Therapy on Maternal Anxiety Associated with Amniocentesis

DATE_____ CODE NO._____

NAME _____

PHONE NUMBER Home_____Work:_____

BIRTHDATE_____

ESTIMATED DATE OF DELIVERY_____

NUMBER OF WEEKS PREGNANT_____

HAVE YOU HAD ANY COMPLICATIONS WITH THIS PREGNANCY SO FAR? YES NO

IF YES, PLEASE SPECIFY?_____

_____

IS THIS YOUR FIRST PREGNANCY? YES NO

IF NO, HOW MANY TIMES HAVE YOU BEEN PREGNANT?_____

DO YOU HAVE ANY CHILDREN AT HOME? YES NO

IF YES, HOW MANY AND WHAT AGE ARE THEY?_____

HAVE YOU EXPERIENCED AN ABORTION? YES NO

HAVE YOU EXPERIENCED A MISCARRIAGE? YES NO

WILL THIS BE YOUR FIRST AMNIOCENTESIS? YES NO

ARE YOU IN OR HAVE YOU ALREADY RECEIVED GENETIC COUNSELING? YES NO

IF NO, WHY?_____

MARITAL STATUS_____

OCCUPATION & EMPLOYMENT STATUS_____

ESTIMATED ANNUAL HOME INCOME_____

WHAT DO YOU CONSIDER YOUR ETHINICTY TO BE?_____

RELIGION_____

HIGHEST EDUCATION LEVEL_____

Title of Project:

The Effect of Reiki Therapy on Maternal Anxiety Associated with Amniocentesis

DATE_____ CODE NO._____

ARE YOU CURRENTLY TAKING ANY MEDICATIONS OR VITAMINS? YES NO
Please identify and specify the amount and frequency

_____

IS THERE A FAMILY HISTORY OF GENETIC DISORDERS? YES NO
Please specify

_____

ARE YOU AFRAID OF NEEDLES? YES NO

HAVE YOU ANY EXPERIENCE WITH OTHER ENERGIC HEALING THERAPIES? YES NO
(For example, polarity therapy, shiatsu, reflexology, jinshin, jyutsu, acupressure, or therapeutic touch)

DO YOU KNOW WHAT REIKI IS? YES NO

HAVE YOU EXPERIENCED A REIKI TREATMENT BEFORE? YES NO

WHAT ARE YOUR PERCEPTIONS OF A REIKI TREATMENT?_____

_____

HOW OPEN ARE YOU TO A NONINVASIVE ENERGY BALANCING TREATMENT?
Please circle the number that best describes the degree of openness that you feel.

Not open at all 1 2 3 4 5 Extremely open

APPENDIX K

Sample Interview Open-ended Questions

At this point your number was a 6. Then it was an 8. What caused the change?

When your number went up what happened?

When your number went down what happened?

Is there anything else you would like to add about the energy changes?

APPENDIX L

Practitioner Procedural Outline

Preparation

1) Remove watch
2) Ensure table linen is clean – bottom sheet, blanket for under the head, knitted blanket
3) Ensure stepping stool is beside table
4) Ensure clock is visible
5) Ensure chair is at the head position

Beginning

1) Participant is escorted to the room
2) Introductions are made (first names only)
3) The researcher will remind woman that she may ask the therapist to stop if she feels uncomfortable at any time
4) Therapist will ask the woman to enter the room and place her belongings on the chair
5) Therapist will close the door
6) Therapist will ask the woman to remove her shoes and step onto the table
7) Therapist will ask the woman to lie on her back on the table with her head on a folded sheet
8) Therapist will ask woman if her head position is comfortable – sheet will be folded another time if necessary to improve comfort
9) Therapist will ask the woman to remove her watch and glasses and place them by her belongings
10) Therapist will straighten the leg pants of the woman if necessary
11) Therapist will position the pillow under both knees of the woman until comfortable
12) Therapist will cover the woman with the blanket
13) Therapist will tuck the woman's arms in
14) Therapist will tuck the woman's feet in – remember to leave a fold over the top of the feet
15) Therapist will ask the woman if she is comfortable
16) Therapist will state that she will be washing her hands and will return
17) Therapist will wash hands and close the bathroom door tightly

Therapy

1) While sitting at the head of the woman, inform her that you will be starting now
2) Ask the woman to close her eyes

NOTE THE TIME

3) Place both of your hands together over the woman's eyes – 5 minutes

- Knuckles of both thumbs meet and are placed at the third eye position on the woman's forehead
- Cup both of your hands to ensure that you are not touching the woman's eyelashes
- Both index fingers are placed fairly close to the woman's nose, yet not touching
- Gently rest fingers on the woman's cheeks

NOTE THE TIME

4) Slide both of your hands down to the woman's temple area of the head – 5 minutes

- The middle of each palm should cover the temple of the head
- The ears are not touched
- Hands should be flat against the head

NOTE THE TIME

5) Place both of your hands under the woman's head – 5 minutes

- Place right hand on the side of the woman's head
- Place left hand on the other side of the woman's head and turn her head towards your right
- Slide your left hand under her head
- Turn her head to the left so she is facing the ceiling
- Hold her head up
- Slide your right hand under her head
- Rest your hands on the table
- Cup her head in your hands
- Hands are touching ad the fingers are at the base of the skull
- Remove your hands as easily as possible – either as described above or slide them out gently

NOTE THE TIME

6) Place both hands over the woman's upper chest – 5 minutes

- Heels of your hands should be touching the woman's collar bone
- Fingers are close together pointing towards the woman's feet
- Fingers may touch breast – ensure this is alright with the woman and adjust hand position if it is uncomfortable for her

NOTE THE TIME

7) Place both of your hands on the woman's upper stomach along the ribs – 5 minutes

- Place the fingers of one hand at the base of the other hand
- This position may be done sitting or standing

NOTE THE TIME

8) Place both your hands under the woman's feet – 5 minutes

- You should be sitting at the woman's feet
- Reach under the blanket and cup the bottom of each foot with each of your hands at the same time
- Comfortably cup the heel of each foot
- Keep your hands on the table – do not hold feet up, but allow them to gently rest in your hands

Conclusions

1) Therapist will remove her hands from the final position and inform the woman that the session is finished
2) Therapist will remove the blanket covering the woman
3) Therapist will assist the woman to a sitting position
4) Therapist will assist the woman off the table
5) Therapist will assist the woman gather belongings
6) Therapist will open door and look for personnel to escort woman back to the clinic

Post Therapy

1) Document any conversation that occurred during the session
2) Document any questions asked and the answers given during the session
3) Document any differences you noted from the previous session(s)

APPENDIX M

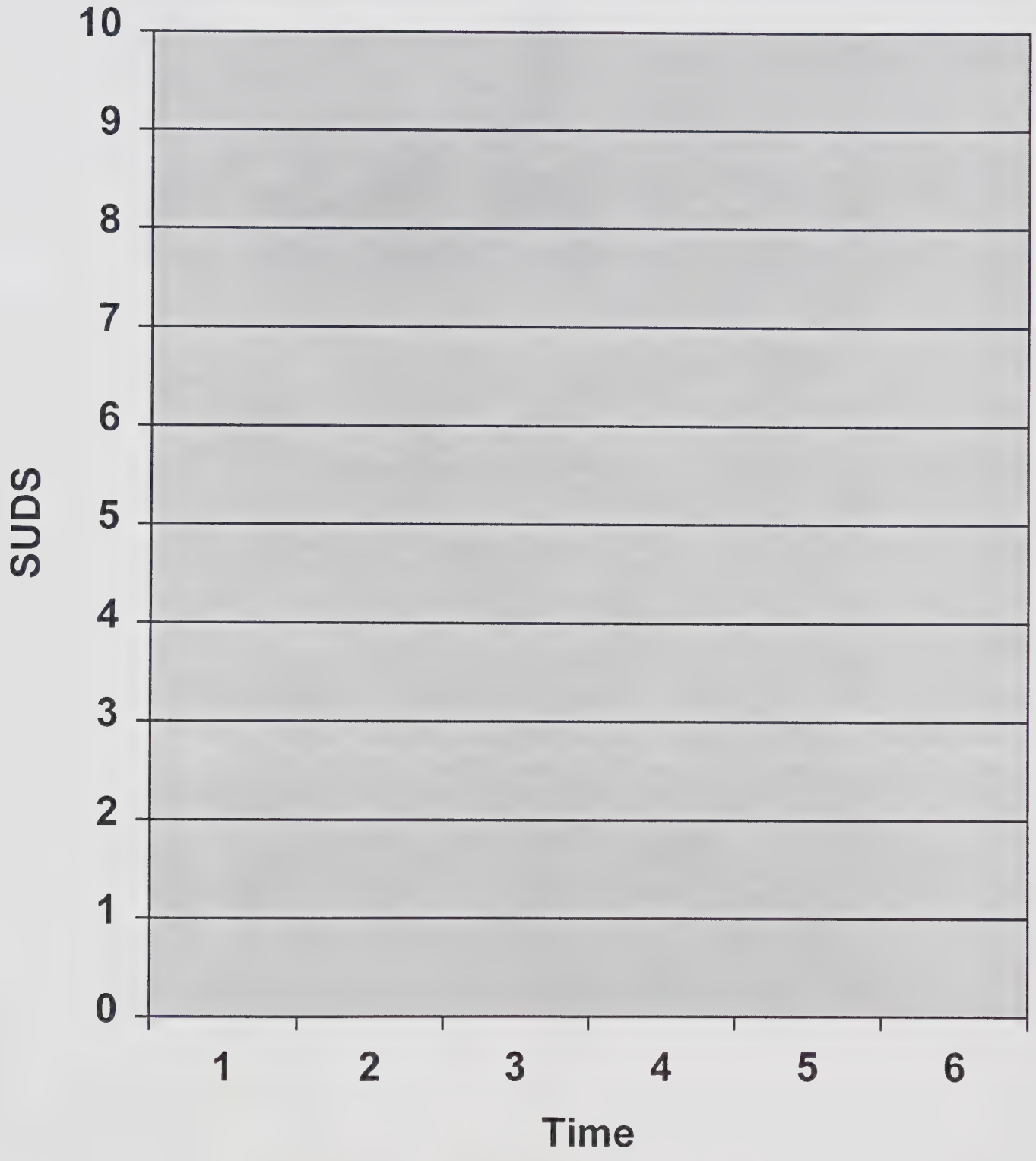
Practitioners' Notes

Each practitioner was given a notebook to document any interactions, questions, reactions, irregularities, and thoughts or feelings about the session that occurred with each participant. There was minimal verbal interaction with the practitioners, and the statements and questions posed to the practitioner were not regarding the study or Reiki; for example: "Are you down here all day?". Temperature of the room and surrounding noise was a confounding variable that was documented for tracking. The rooms were identical in temperature in comparison to each other; however the temperature was colder on some days than others. Noise included housekeeping, overhead announcements, and construction. A practitioner was late once and absences occurred with each practitioner. On these days, another second degree Reiki practitioner replaced the original after completing the process of the placebo development. The placebo practitioner documented once that she "never seemed to have [her] hands quite right. Not centered or not equal pressure". The Reiki practitioner documented that "two fingers on left hand went to sleep and shook arm prior to the next hand position", "smooth process", "room was warm and energy flowed", and "had a lot of energy that I felt in my hands…the energy seemed to flow well into all areas". A participant from the Reiki group needed to bend her knees to maintain lying on her back. One participant from the control group only stayed in the room for 17 minutes as she was very fearful that she would be late for her appointment after the amniocentesis. Despite the reassurances by the practitioner, the primary investigator, and the staff nurses, the participant remained agitated, thus was escorted to the clinic immediately. Following

one of the Reiki sessions, a participant stated that she felt "a little lightheaded" and the practitioner had to assist her to sit in a chair for a minute.

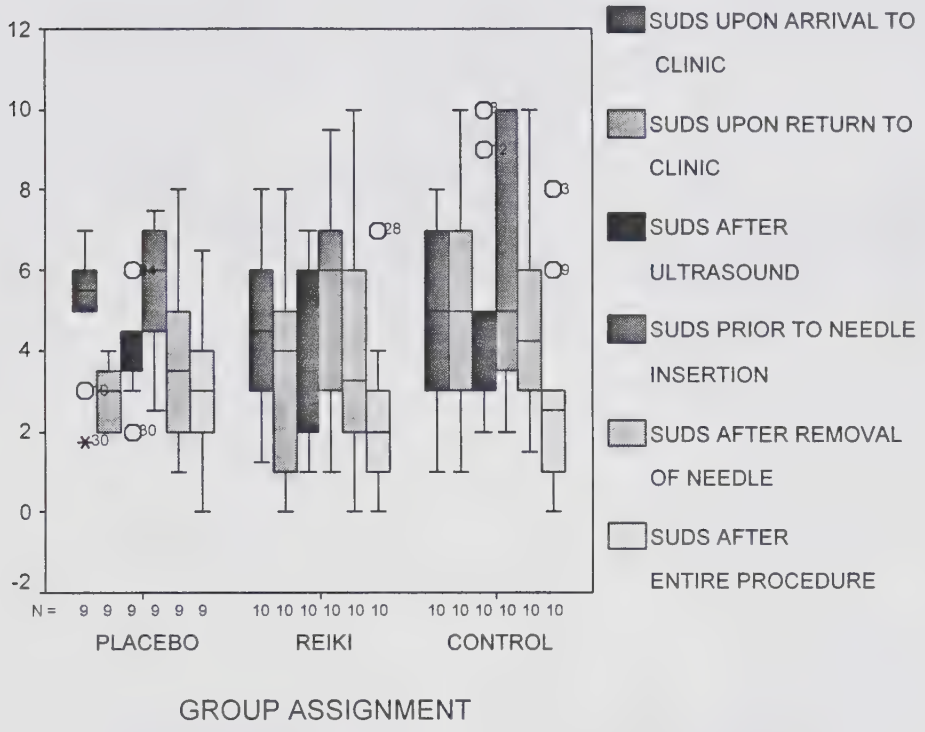
APPENDIX N

Documented SUDS Response Graphic Sheet



APPENDIX O

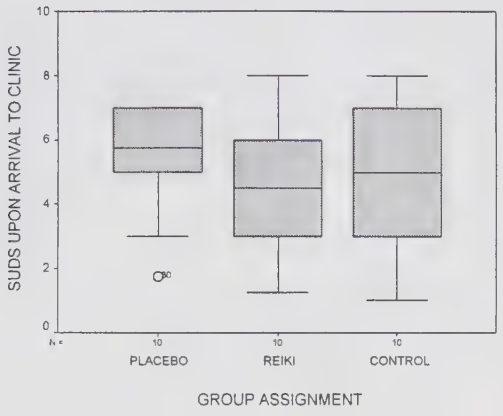
Comparison of SUDS Responses Across Procedural Points Per Group



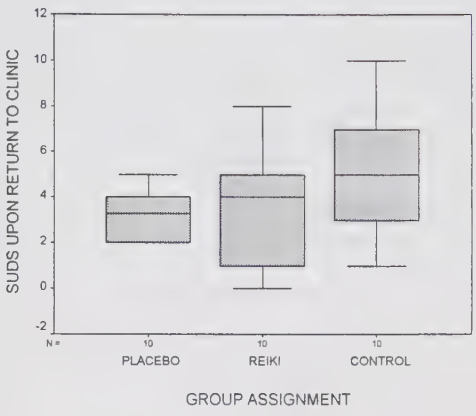
APPENDIX P

Procedural Point 1-6 SUDS Responses by Group

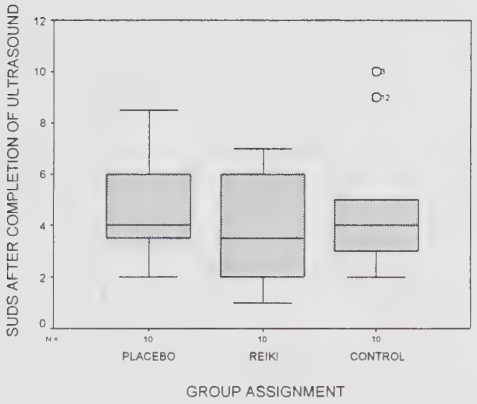
Pre-Treatment



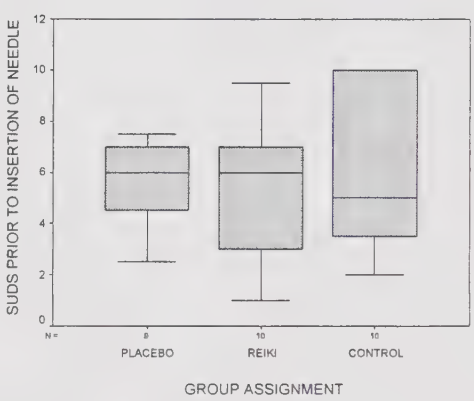
Post-Treatment



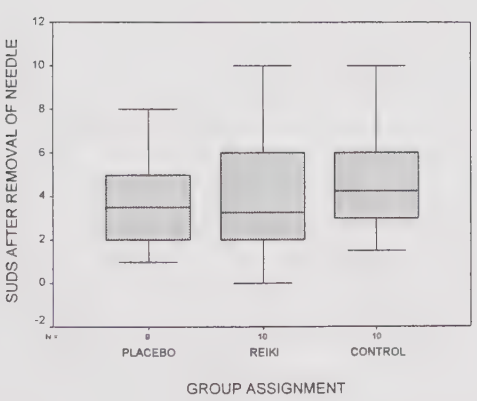
Post Ultrasound



Prior to Needle Insertion



Immediately After Needle Removal



Amniocentesis Completed

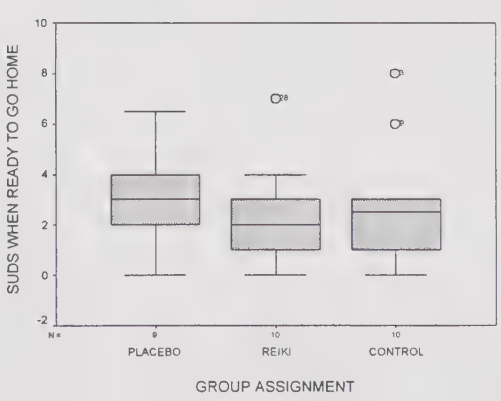
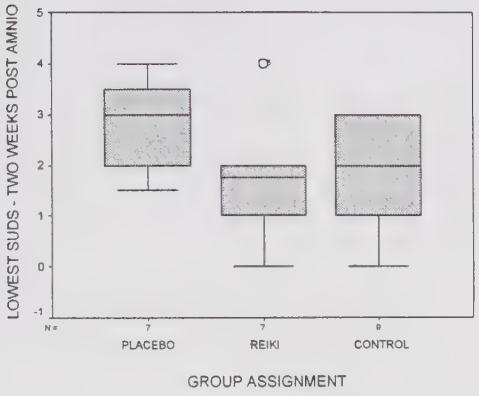


Figure 4: Two-Week Post Amniocentesis SUDS Responses

Lowest SUDS Response



Highest SUDS Response